YACHTING

VOLUME XVII, NUMBER 2 FEBRUARY, 1915 25 Cents a Copy $2.00 a year

ENCHANTRESS, THE LATEST DEVELOPMENT OF EXPRESS TYPE POWER CRUISER. SHE HAS SHOWN 22 MILES AN HOUR AND WILL BE EXHIBITED AT THE SHOW

The Boats at the New York Show

An Unusually Fine Lot of Power-Driven Craft that Marks a Distinct Advance in Design, Construction and Powering Over Previous Years. Boats for Every Type of Service

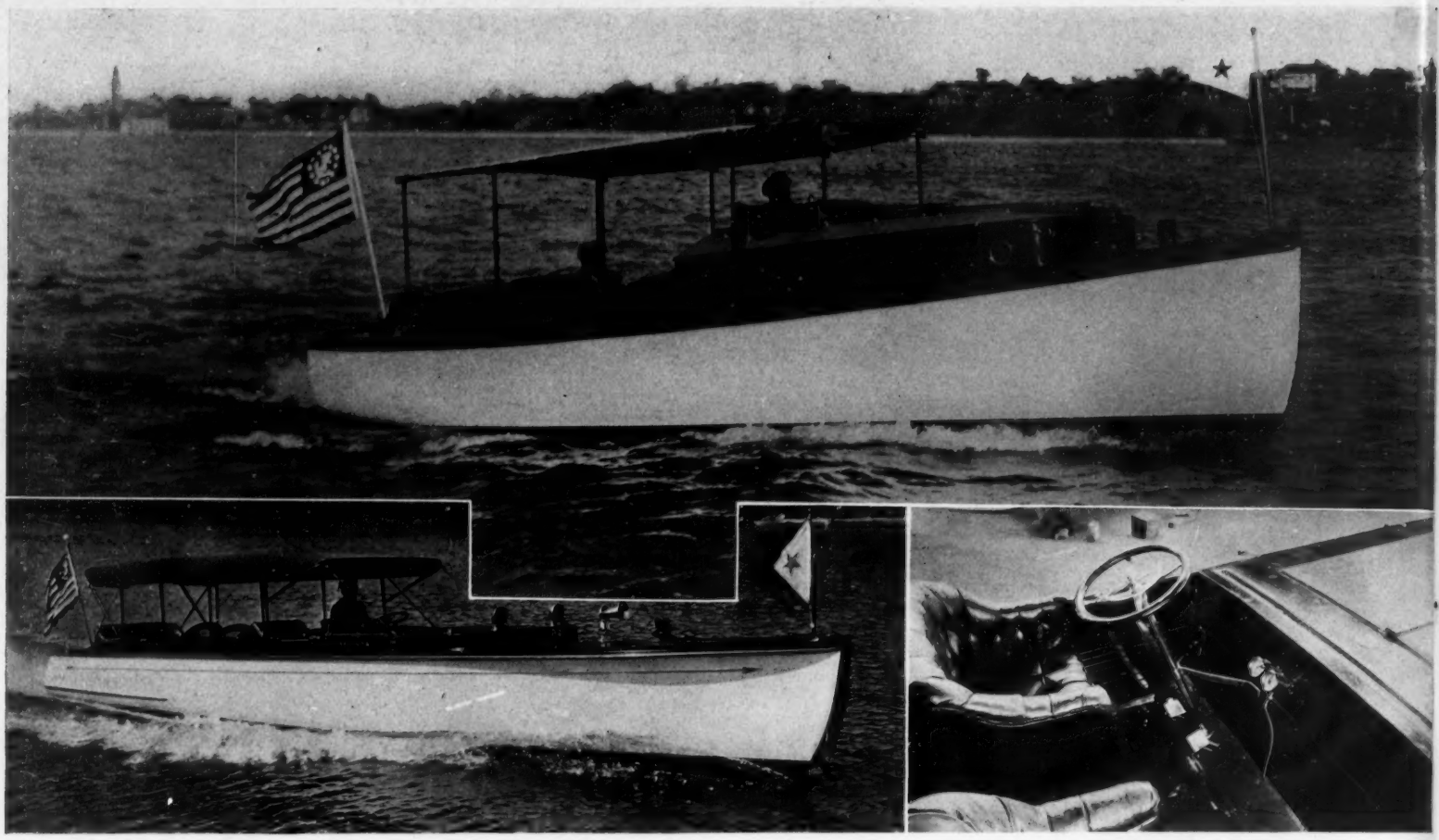
SEABURY SPEEDABOUT

THE attractions of power boating have never been more forcibly portrayed, and the development of the boats driven by internal-combustion motors never more clearly set forth, than at the 1915 Motor Boat Show at Madison Square Garden. The boats themselves are always the most striking, and for that reason probably the most interesting, part of this annual exhibition, especially to those who are not already boat owners, and this year the boats shown at the Garden cover a wider and a more generally useful range of types, especial attention having been paid to the smaller-sized cruisers and less expensive boats that appeal to a greater number of pocketbooks.

Undoubtedly the small cruiser with comfortable accommodations for two or three people and a wide cruising radius is more attractive to the average man than any other type, though the fast runabout and general utility launch is also gaining in popularity. The trend in the latter seems to be towards more power and higher speed and there is no reason why, with the average runabout, even at a moderate price, a man cannot get from 15 to 20 miles an hour in safety and comfort and without undue expense.

One of the largest exhibitors of boats is the Gas Engine & Power Company and Chas. L. Seabury & Co., Cons. This firm shows two of the well-known Speedway runabouts and a 50-foot, high-speed runabout cruiser. The runabouts are stock patterns, one of them being a 32-footer with mahogany hull, finished bright,

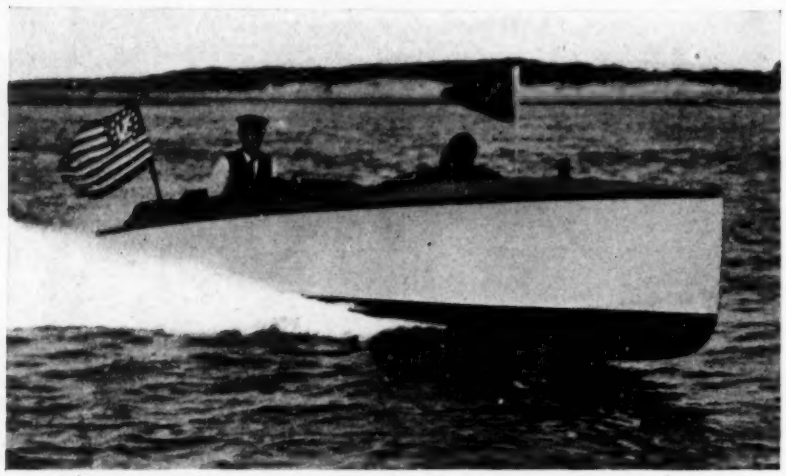
26-FOOT CINDERELLA TYPE, MAHOGANY RUNABOUT, WITH A GUARANTEED SPEED OF 35 MILES AN HOUR



TOP—CRUISETTE, A 32-FOOTER FOR THE MAN WHO WANTS TO RUN HIS OWN BOAT. WILL SLEEP SIX BELOW DECKS. BELOW—BELINDA, A 32-FOOT UP-TO-DATE NIAGARA RUNABOUT AND HER AUTOMOBILE TYPE OF STEERING COCKPIT

the motor being under hinged covers forward, while steering gear and engine controls are on the forward bulkhead.

The after cockpit is large enough for four wicker chairs with



HAND V-BOTTOM 20-FOOTER WITH A SPEED OF 22 MILES AN HOUR

plenty of room to move around, while there is an after 'thwartship seat. The motor is a 40-H. P. Speedway engine with self-starter and electric lighting system. The other boat is an essentially new Speedway type, a 25-foot, fast, flexible Speedabout. She is powered with a 22-28-H. P. Speedway motor which gives a guaranteed speed of 18 miles an hour. Being designed for lake, river, or even open-water use, especial care has been taken to make her particularly strong and safe. The 50-footer is fully described in the special Show section of this issue.

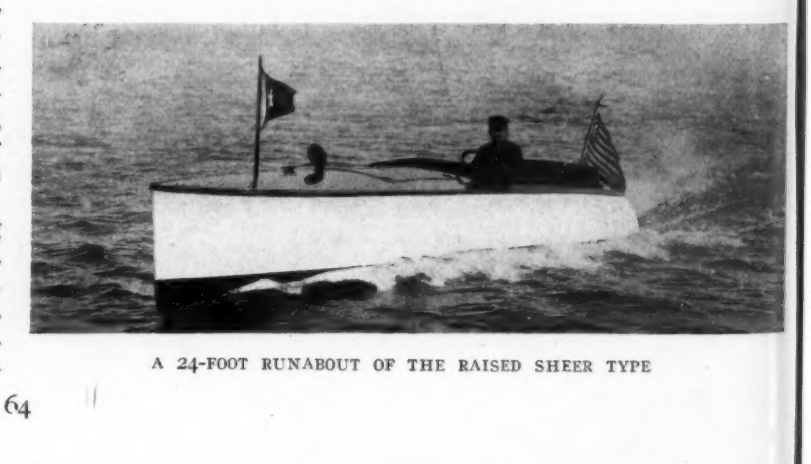
The Reliance Motor Boat Company exhibits a very interesting boat of the famous Cinderella type, designed for very high speed, yet with accommodations for four, or even more, passengers. This little boat is 26 feet long, mahogany planked and finished, and is equipped with a 4-cylinder, high-speed Sterling engine, which is expected to give her a speed of over 35 miles an hour. A boat of the same type turned out last year did 36½ miles without difficulty.

The Niagara Motor Boat Company have brought out a 32-foot by 6-foot runabout, which is most attractive both in design, arrangement and finish. The engine is installed in the forward part of the cockpit under a hinged hatch, just aft of which is a little steering cockpit with two automobile-type leather upholstered seats. Abaft this is a large, open cockpit for wicker chairs. There is a folding automobile top with a glass wind shield that fits into a pocket just forward of the engine-room bulkhead. The boat has good flare and a high finish. The motor is a 45-H. P., equipped with electric starter.

Fay & Bowen show several runabouts of various sizes, among them being a new design called the Junior Runabout, 24 feet long by 5 feet beam, especially intended to meet the demand for an auto-type boat. She has the modern hogged sheer, giving her a fast and rakish look, and, with a 4-cylinder Fay & Bowen motor, makes a guaranteed speed of 16 miles an hour.

With the growing appreciation of the good points of the V-bottom type, the new boat by William H. Hand, Jr., will be particularly interesting. This boat is a 20-footer, and under severe conditions has been tested to a speed in excess of 22

(*Continued on page* 89)

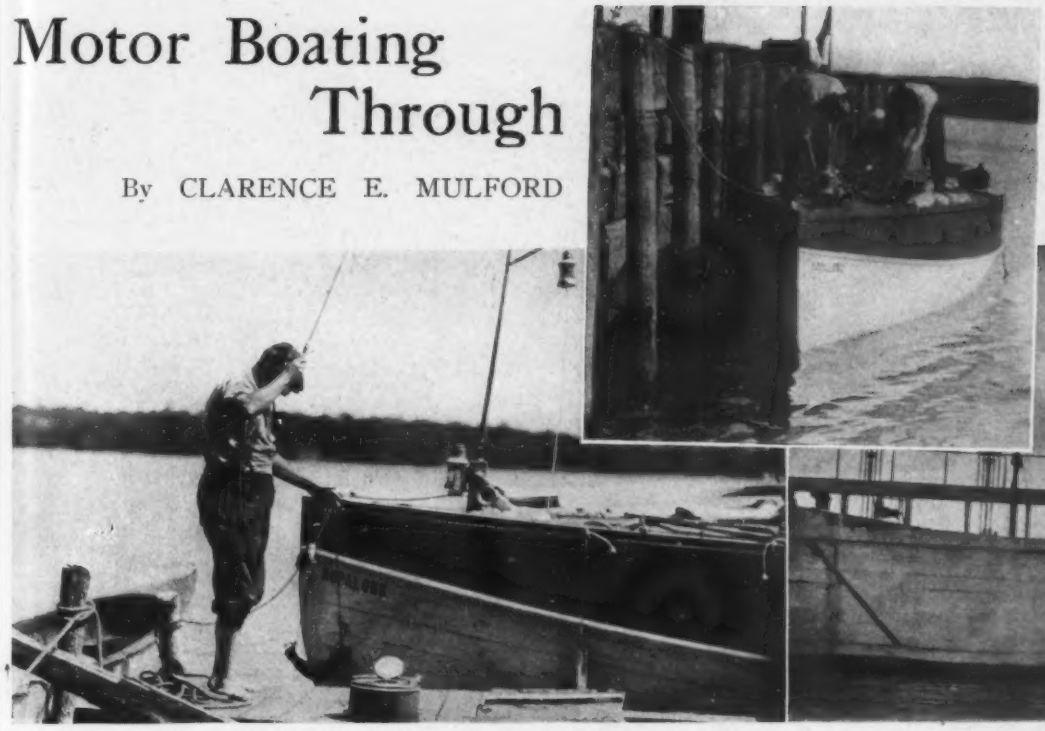


A 24-FOOT RUNABOUT OF THE RAISED SHEER TYPE

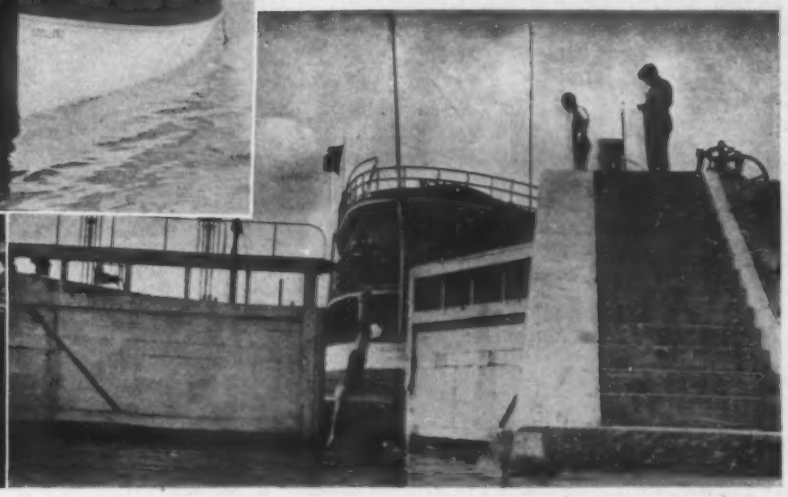
Motor Boating Through Kanuckia

Part II—Through the Rapids and Shoals of the Upper St. Lawrence to Clayton, and What Befell on the Way

By CLARENCE E. MULFORD



THE ENGINEER CATCHING LITTLE ONES AT PICTON ISLAND CAMP



DIVING FROM THE LOCK WALL, MORRISBURG, ONT.

ALONGSIDE THE DOCK AT CLAYTON

OPENING A LOCK GATE IN THE DOMINION

WHEN we left the canal around Farren Point Rapids the steamer Beauharnois was astern, but she passed us and reached Aultsville first. We put in there because another windstorm threatened, and we didn't care to wrestle with one when the current was giving us all we could handle; but after waiting for half an hour we decided it had blown over, and we put out again, hoping to make Morrisburg before dark.

Above Steen Island we encountered currents that ran like millraces, and cut our speed down to a snail's pace. At Weaver Point the extending shoal forced us to forsake the bank and fight the currents in midstream, where they are the strongest. We had crawled past the shoal, Treasure Island (unnamed on the chart), and were past the black can buoy when we stood still again despite all we could do. Not being able to get near either bank because of shoals, we were crossing and re-crossing the middle of the river when a storm broke upon us. Never have I seen such a rain; it completely blotted out the island and the buoys and drummed on the cabin in a steady roar. Not being able to see ahead we put about and were back at Treasure Island before the boat had fully turned.

Anchoring on the edge of the current we were about to stop the engine when we found we were dragging. Just then a man on the island shouted for us to run in and moor to the little, submerged dock. Thus we met Mr. Bradford, who came aboard, laughed at our attempt to buck the current, and offered to pilot us to Morrisburg on the morrow. He knew the slack water and could take us over shoals that the chart forbade us to attempt, and although we hated to take a pilot it was our only way out and we accepted his kind offer.

When we cast off the next morning Bradford fastened his skiff astern, took the wheel, and, by picking out slack water and crossing and re-crossing the river, took us slowly to Morrisburg, which we reached after several sharp fights with the currents.

I wanted a new hat, and went in search of one, the Engineer going with me because he wanted one, too, and one that would match his awful Cornwall shirt. This, of course, was impossible. Such a hat would be dangerous to wear, because there are people at large who would shoot at such a creation on sight, and no manufacturer would dare make one; but sometimes there is a hatmaker who comes very close to the dead line. One of such a manufacturer's worse efforts caught the Engineer's eye, and nothing would keep him from buying it. What if it were a size too small?

I was looking at a pile of straw hats, and finally picked out the best of the assortment with great recklessness when I saw the Engineer's choice. There was a lot the matter with it, for it looked like a checker on a shingle, and would fit only flat heads. My head is not flat, and when I put on that hat I feared my cranium was shaped like a pineapple with the pointed end up, because the sides of the hat did not touch all around at the same time; it pivoted on my head like a pie-tin on a stick, and vagrant breezes spun it gently.

Returning to the boat, we saw our pilot slipping down the river like quicksilver down a slope, and farewells were waved, after which we described each other's hat until we were interrupted by visitors.

"Going up?" asked the elder. "Well, the worst is ahead of you."

"Pleasant news!" I groaned.

The young chap laughed, and was explaining how to beat the currents, when his companion interrupted him, and an argument ensued, the upshot of which was that the young man offered to prove his points by showing us the way through slack water. While we were confident we could make it by ourselves, we did not know how long it would take us, and accepted his offer so that we could save time. Ahead of us was Point Three Points, the narrowest place in the river, and, naturally, the place of the swiftest currents outside of the rapids themselves.

We were not at all enthusiastic about Point Three Points, for it is not pleasant to run at top speed and stand still, and we could sympathize with a squirrel running in the revolving cylinder attached to his cage. One becomes peeved while running half a mile sideways to gain a few feet ahead, not knowing at what moment some vicious current will steal the results of an hour's anxious sailing.

When we left the canal we followed the north bank of the river as closely as possible, and made fair headway to Leishman Point, where we barely gained. Point Three Points drew slowly nearer, and on its curving bank broke and seethed the swinging

"WE SWUNG AWAY FROM THE SHELTERING BANK TO BE STRUCK BY A GLITTERING RIDGE OF WILD WATER"

SUNSET AFTER THE RAIN WAS OVER ON THE UPPER ST. LAWRENCE RIVER

current that ripped along the north shore and, deflected by the point, shot out into the river in a ridge of foam-covered, emerald water. Then came the instant when we stood still! Dodd put the wheel over hard, and we swung away from the sheltering bank to be struck by that glittering ridge of wild water. One bank receded in a manner to make us wonder, and the other hurtled at us. We dropped back a little as we slid across sideways, but, once out of the ridge, we began to gain again, and soon drew close to the south bank, where we hung in the balance for a few minutes off an unnamed point, and then went on slowly until Point Rockaway was alongside. Here the river executes the second sharp right-angle bend in the distance of a mile, and across the stream is Iroquois and the canal—truly a fine place for a ten-horsepower boat to land!

Dodd duplicated the tactics I had used at Farren Point Basin, and after a few minutes of suspense we slid sideways into the canal, where a twenty-five-foot level is overcome by one huge lock.

Down the middle of this canal around the Galop Rapids is a line of red spars and rocky islets, and for some reason Dodd tried to pass the first spar on the wrong side, and, as I shouted to him, we struck bottom and slid back into deep water, after a few solid bumps, which promised ill for the pitch of the propeller blades.

When the river came into sight again over the canal bank it was a great stretch of turquoise, shot through with emerald and opal tints, and the sun masked its rages with a smile. But it does not fool a man with a chart, for under its beautiful surface lies its sting, and woe to the boat shooting around that bend at Cardinal that feels it! At its present level there was only a hint to its hidden fang, which is Fraser Shoal, the resting place for the skeletons of ships wrecked by this double-faced thing of beauty and delight. To the knowing eye its perfidy is revealed by a red can buoy that marks the trap and fights stubbornly against the rage of the exposed waters.

Running slowly along the bank at Cardinal, we said good-bye to Dodd, and soon left the canal to enter the head of the Galop Rapids, where more green water slants wickedly, but is too hurried to do more than wrinkle its face at you. Two dikes showed us the way, and we passed between them, and soon were running warily between the protecting banks of North Channel. Spencer Island lay ahead, and it has something pertinent to say to little boats; but the charted plan of its surroundings let me guess what the message would be, and I met the thrust of that powerful side current with a solid swing of the wheel, and quickly slid across it with but little sidewise drift. It is here the south dike stops, which affords a clear view of the head of the great Galop. One glance was enough for me, because ahead were matters of moment, for the baffled St. Lawrence had one more card to play, and that is a big trump if it comes as a surprise.

The northern dike lies south of the middle of the river, which, blocked by this and other improvements, must pass between this wall and the American shore. Between it and the Canadian bank is a backwater, half as wide as the whole river, and for this impounded water to escape it must cut across the end of the dike at right angles to it. It is one thing to meet a powerful current bow on, and quite another to have it thrusting against the side of the boat, finding greater area on which to exert its strength, and not being directly opposed by the engine. The chart kindly allows you to discover this for yourself. I knew that if we blundered out past the end of the dike there would be a tremendous side attack that might easily turn us around and push us into the rapids before we could help ourselves. Ahead was a black can buoy, and to sail the proper course we must go straight ahead; so it resolved itself into out-guessing that driving cross current. We did this by putting the wheel hard over when we reached the end of the dike and swung around nearly at right angles to the course we had been following, thus meeting the flanking current nearly bow on. We did not gain an inch ahead, nor did we want to; all we cared for was to hold our own and be pushed across sideways. To port was the Galop, armed with rocks and shoals; ahead plunged and rolled the huge, black can buoy, anchored on the bar by a twenty-ton concrete block. For a few seconds it was a toss-up whether we would get across or be pulled into the rapids, but after an interval of suspense we began to gain, and finally passed the buoy, heaving sighs of relief as we got back on our course and headed for Ogdensburg.

Across my mind flashed the thought that we had shown a large supply of cast-iron gall to cruise for pleasure up such a stream as this, for there are many places between Pointe aux Trembles and Ogdensburg where angels fear to tread; and we, wingless, had made good the first part of that well-known quotation. By the time we moored at Ogdensburg we had agreed unanimously that the next time we made this cruise we would go up the Ottawa River and come *down* the St. Lawrence.

Taking on gasolene the following morning, we found that we had used 25 Canadian gallons (over 30 American gallons) since leaving Cornwall, 50 miles astern. Twenty-two miles of this had been made in canals, which left only 28 miles of river; and we estimated that six gallons had taken us through the canals. It had taken two full days to make that distance, and the 28 miles of river had consumed 19 gallons of gasolene!

When we left Ogdensburg the current was still swift, but we sneered at it. Leaving Hillcrest Shoal, the river widened out and the strong wind piled up a heavy head sea. By the time we reached for Crossover Island my glasses were covered by spray and I was thoroughly soaked, which led the Engineer to offer to take the wheel; he got it without argument until we passed Chippewa Point. Here the wind increased in violence and a heavy storm threatened, but now that the terrific currents were all astern it caused no apprehension. The river is four miles wide here, dotted with small islands and hiding a number of dangerous shoals, for now we were coming to the home of the "hard spots," which are rock shoals that push up out of deep water and come within a foot or two of the surface. We avoided these without trouble, because I had paid them the compliment of

A COOK STOVE WAS SET UP UNDER THE TREES AND SURROUNDED BY FIREWOOD FOR THE BENEFIT OF THE CHEF

putting a heavy, black circle on the chart around every one that a reading glass helped me to find.

Sister Island was passed at noon, and on the reach for Whiskey Island we saw a fleet of sailboats in a race that were identical in lines, size and fittings. We were told they were part of a fleet of 30 built from the same model, and that the same club has a fleet of 30 high-speed motor boats constructed under the same idea. Evidently this club meant to have no handicap squabbles and was determined to put contestants on an equal footing with each other.

Islands were on all sides of us now, and soon we passed through the channel between the Excelsior and Summerland Groups, rounded Sunken Rock Light and reached Alexandria Bay, which, although a pretty town, has all the ear-marks of the summer resort. Hotels, boarding houses and curio shops stamp it plainly. We explored the town the rest of the day, and the Engineer made the night trip among the islands, and was lucky, because it was Saturday night, when the illumination is a beautiful sight.

Sunday morning the Steward "slicked up" and said he was going to church, which pleased the Engineer, who liked to see someone else put on a collar.

"Good for you, Johnny!" he exclaimed. "Somebody should go, for the sake of the boat, and I know no one better qualified to represent us. While you're looking out for our spiritual side I'll mosey around and see if I can get some bait, and learn of a good place to use it."

The Steward grinned: "Suppose I get the bait and you go to church?"

"Lordy, no!" ejaculated the startled Engineer. "You wouldn't know a minnow if you saw one. Anyhow, you wouldn't let me go without a collar, and that lets me out. I flatly refuse to wear one."

"Did you ever go to church?" asked the Steward.

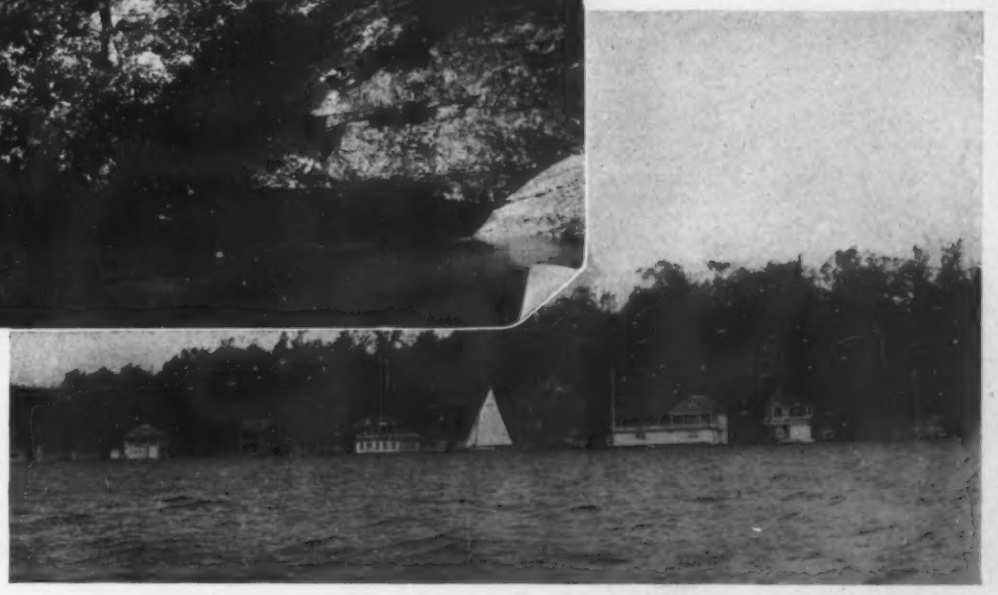
The Engineer was indignant: "Sure, I do: every Christmas, with the kids."

True to his word, the Engineer went after bait, and returned with a young man and his wife. "These people have the bait," he said, smiling; "but no way to go; we have the way to go, but no bait. We'll all go fishing together." And we did; running over to an island that is a State park and entirely surrounded with big rock bass, which are small enough at best. Tiring of catching little fish, the Chef hobbled after me on a hunt for photographs (he had broken his foot back in the Champlain Canal), and we put in a delightful day. Night came too soon and we had to take our guests home; but if we had known what was in store for us that night we would have returned to the island at full speed. We were moored to a wharf and had just eaten a fine fish supper on the boat when swarms of mosquitos attacked us, and we passed a miserable night fighting the pests in the dark and the heat, for, of course, this had to be the only hot night we experienced on the whole cruise.

Day was breaking when we turned out as if by prearranged signal. The Engineer and I had managed to get a little sleep, but the Chef and Steward had not closed their eyes all night. Dawn brought no relief, and to make things worse a light rain was falling. We broke all records for getting under way, and soon left the accursed wharf astern and sailed for Clayton, where things could be no worse, and might be infinitely better. The rain increased, and I began to yearn for breakfast, which I decided to cook by myself, since the Chef was making up for some of the sleep he had lost; so we ran in and moored to a dock just above the Wells Island Light, where we remained until the rain eased up.

At Rock Island Light we entered wide water again. To starboard lay Thousand Island Park, drab and dull

MARY ISLAND WAS ENTIRELY SURROUNDED BY BIG ROCK BASS



CANADIAN SHORE OF THE ST. LAWRENCE BETWEEN OGDENSBURG AND ALEXANDRIA BAY

in the rain; Grenell Island, with its little summer colony, lay above it, partly hiding Murray Island and its big hotel. Washington Island soon was passed, and we moored to the wharf at Clayton at half past seven o'clock.

After getting a generous mail, we ran on and made fast to the unfinished waterworks dock, which was a piece of luck, for the friendly engineer of the pumping station gave us the use of his hot and his cold-water faucets. We also lay close to a bakery that we will long remember. Take notice, ye cruising skippers who read this—do not pass Clayton without stopping at that little bakery across from the pumping station for a supply of cherry pies as fine as you ever have tasted!

That evening we were told of a great storm that raged at Kingston, across the lake, and that it was headed toward Clayton. The dock was no place to lay during a blow from that direction, and we found a snug haven on the east side of the town, and moored to a boat house, which was another bit of luck, for here we became acquainted with George Fraser and a fine crowd of good fellows.

Fraser emerged from the boat house to see what was up, and it was not long before we were old friends. He invited us to make our headquarters in his camp on Picton Island as long as we cared to stay there—which just suited us, for we had no wish to cruise among the islands. We had had all the sailing for sailing's sake that we cared for since leaving New York, and welcomed a good rest ashore. We spent six days at his camp, and only visited Clayton to get mail and supplies.

In the March issue the trip to Kingston and through the Rideau chain of lakes and waterways to Ottawa is described, with the adventures that befell the Hopalong on the way.

Installing the Engine in the Auxiliary

By CHARLES H. HALL

OF recent years the popularity of the auxiliary cruiser has grown so that, apart from out-and-out racing craft, few sailing yachts are built without provision being made for installing power. If the engine is not put in when the boat is built, she is very apt to have a shaft log fitted and propeller aperture cut (and filled up), so that an engine may be installed later.

The usual arrangement is to have the motor directly connected to the propeller shaft, either with or without reverse gear, and to have engine and propeller revolve at the same speed. This plan, except with craft of the very lightest displacement, prohibits the use of any but a slow-turning, heavy-duty motor. Such an engine occupies a good deal of space and is very heavy, but is the only suitable type for a cruiser. The revolutions must be kept low and the propeller should be of large diameter. In a heavy cruising boat the propeller should turn not over 350 or, at the most, 400 revolutions per minute. Where the motor does not drive the propeller shaft direct, but is geared to it, a lighter, faster-running, medium-duty machine may be installed.

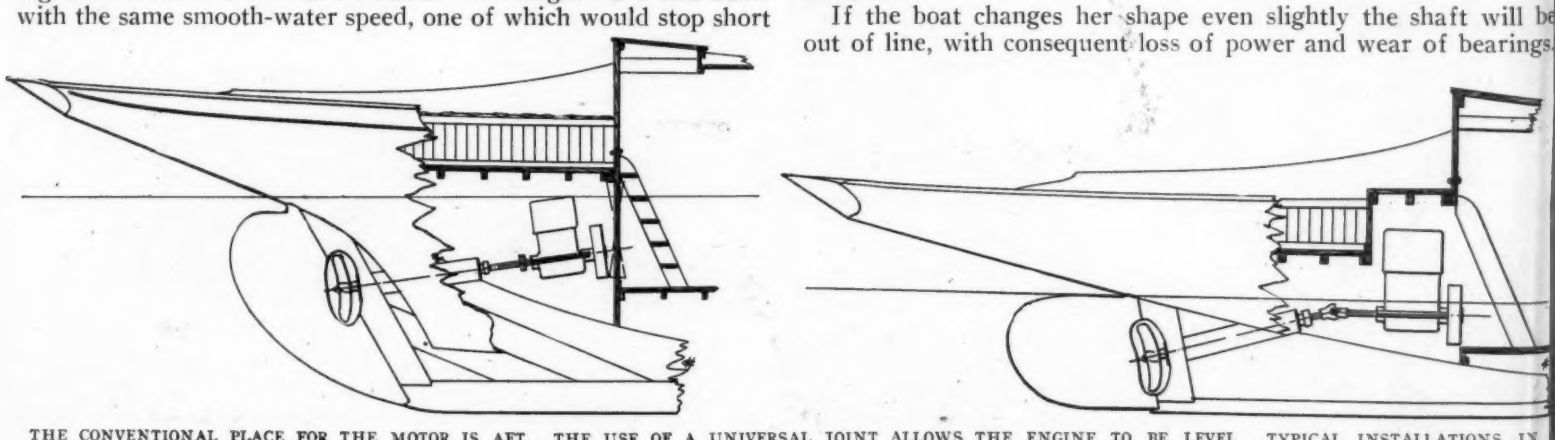
The amount of power requires considerable thought. If the engine is to be used only occasionally there is no necessity for large power, and it is surprising how easily a heavy sailing craft may be driven at low speeds. The model of such a boat is not adapted to high speed, and installing a large engine means wasting power, gasolene and oil. At the same time there must be power enough to "buck" a sea. The amount, of course, depends on the model of the boat. Light, shoal draft centerboard craft will pitch heavily and smash down into a sea and almost stop, where a deep-bodied, heavy-displacement keel boat will keep going with much less fuss and trouble. We might have two boats with the same smooth-water speed, one of which would stop short in a moderate sea, while the other would be slowed down very little. It is seldom, however, that a heavy sea is bucked under power alone, the usual practice being to thrash to windward under short canvas, keeping the motor going and pinching the boat a trifle instead of sailing her a hard full.

The location of the engine is most important, as it should by all means be kept out of the cabin on account of heat, dirt, noise and odor. In a small or medium-sized craft the most convenient place is probably aft, with a bulkhead between it and the cabin.

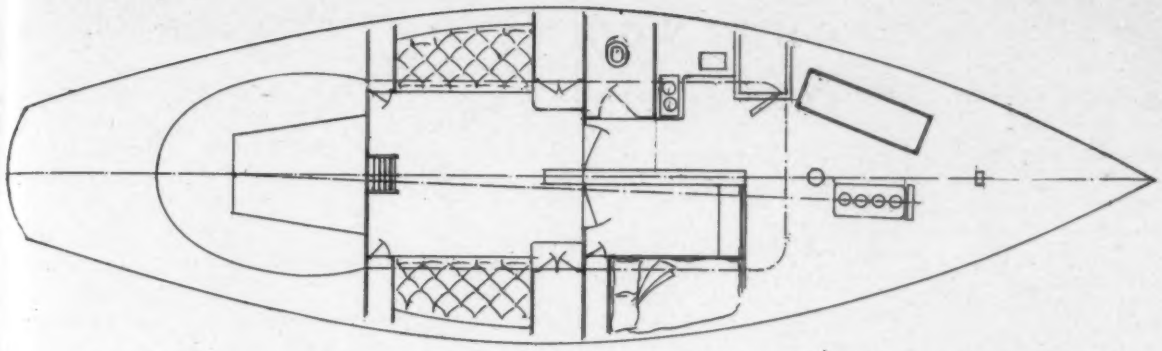
There may be a hatch in the cockpit floor above the motor or a short bridge deck. A hatch in the cockpit with a coaming, no matter how low, is an intolerable nuisance; one is stumbling over it day and night and usually at the most inconvenient and critical time. A flush hatch is hardly satisfactory on account of lack of water tightness, as, if it leaks, the water goes down on the cylinder heads. Salt water is not particularly good for gasolene engines. In many cases the companion ladder to the cabin is on the center line with the motor abaft it. This means that the ladder must be shifted each time the motor is started or attended to. Often the ladder can be located on one side and freer access given to the engine, or it may be arranged to slide athwartships on a rod far enough to clear the fly-wheel.

Some boats have the motor forward in the forecastle, galley or a separate engine room. This arrangement ensures a shaft line nearly horizontal, thus obtaining better propeller efficiency and less vibration, but it involves a long shaft with numerous spring bearings. These bearings have to be oiled, and must therefore be accessible through hatches in the cabin floor, which is a nuisance.

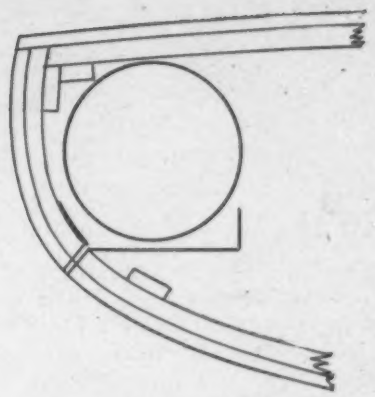
If the boat changes her shape even slightly the shaft will be out of line, with consequent loss of power and wear of bearings.



THE CONVENTIONAL PLACE FOR THE MOTOR IS AFT. THE USE OF A UNIVERSAL JOINT ALLOWS THE ENGINE TO BE LEVEL. TYPICAL INSTALLATIONS IN A KEEL AND A CENTERBOARD BOAT



IF THE MOTOR IS FORWARD IN A CENTERBOARD CRAFT, THE SHAFT MUST BE KEPT CLEAR OF THE TRUNK



DRIP PAN, DRAINING OVERBOARD, FITTED UNDER GASOLENE TANK

This plan also means long leads for the controls, with fair leaders, bell cranks and other doodads.

In a centerboard boat where the motor is placed forward it naturally has to be off center. Indeed, even in a keel boat, it is often put to one side, where it is forward of the mast. This, however, is immaterial, as the angle between shaft and centerline will be very small. With the motor aft everything is handy, the control leads are short and direct and the motor is easily accessible. The control levers are often fitted on the wheel-box, although in this location there is usually a chance of fouling them with the bight of the mainsheet. The reverse gear may be short, projecting only a few inches above the cockpit floor and worked by the helmsman's foot.

No matter where the motor is located, care must be taken to have plenty of room around it. When one is put into a boat already built there may be some excuse for crowding, but in a new boat, designed as an auxiliary, there should always be sufficient working space around the engine. We see too many craft where one must almost stand on his head to get at the motor.

The question of reverse gear is very largely a matter of individual preference. It is, no doubt, often a convenience, but it occupies valuable space, and, in the writer's opinion, is not really essential. We make landings and pick up moorings under sail, the force of the wind and the speed of the boat being different each time, and judge our boat's way correctly. Why, then, is reverse gear necessary when the speed under power is practically the same each time a landing is made? A real sailorman knows to a fathom just how far his boat will shoot under varying conditions. With a large auxiliary, landings alongside a dock are seldom made, anyhow. In crowded waterways, however, some method of reversing is remarkably convenient.

The propeller should be kept fairly low, as there is less chance of racing in a sea. When close to the surface, the propeller may be thrown partly out when the boat is pitching, and it does not even have to break the surface to race somewhat, with a consequent strain upon the entire plant. At the same time, the shaft should be as nearly horizontal as possible, as this means higher propeller efficiency and less vibration.

A metal sleeve, either of lead or of soft copper, should be fitted to the shaft, the inside diameter of the sleeve being big enough to clear the shaft even though it is out of line or whipping. This sleeve, when properly fitted, ensures a thoroughly watertight job, preventing all leaks through the shaft log. Without it heart shakes in the log, invisible from the outside, may allow an annoying leakage.

In anything but a davit boat, or one that can be readily beached, the stuffing box should be on the inboard end of the shaft log, as the gland can then be packed or set up while afloat. The stuffing-box is put on with a water-tight joint against the forward end of the stern tube. The stern bearing, of course, is fitted at the after end.

It is just as important in an auxiliary as in a motor boat to have the engine bed well designed and of a substantial construction. The beds proper, that is, the fore and aft members, should be of ample width and as long as possible, extending over a number of frames. The forward end has to be cut away to clear the fly-wheel, but it may be bolted to a stringer or extended three or four spaces forward of the engine. The athwartship members, or floors, are sometimes dovetailed into the beds; but this is not absolutely necessary, as they may be simply jogged into them half an inch or so. In any case, they should be well fitted and fastened. All joints in the engine foundation must be good ones, as shims are not allowable here, and particular attention must be paid to the fastenings. Where possible, have the beds fitted before the boat is planked, so that the bolts may be driven from below. These bolts should have good heads and washers on the bottom and may be clinched over washers on top or, if desired, be threaded and have good square nuts on them. Hexagon nuts may look neater, but, after they have been on a while, are hard to set up. The bolts may be cut off a little above the top of the nut and riveted over.

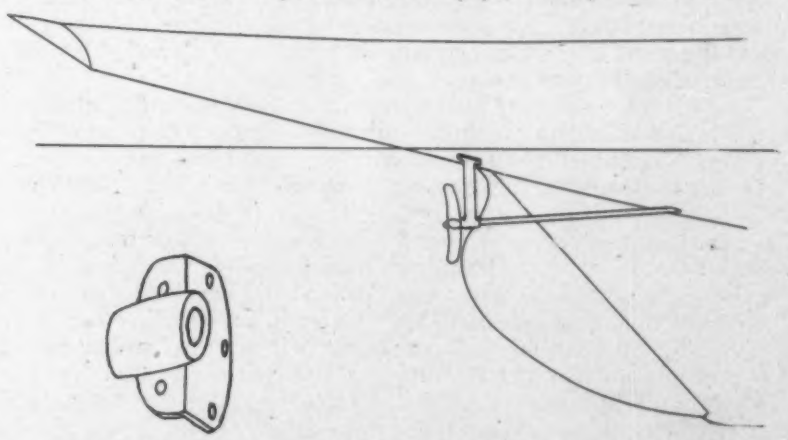
Lag screws are often specified for holding down the engine, but hanger bolts are better. These are screwed into the wood and the nuts screwed down on top of the bed plate of the engine. The engine may be lifted without disturbing the bolts, whereas lag screws must be removed if the engine is to be lifted, and can never be screwed in tight again. The hanger bolts are sometimes made with a machine screw thread at each end, the nuts on the bottom end being in pockets cut through the side of the bed and the bolts turned into them with a stillson.

Some craft have the entire engine space sheathed with light metal. This makes a very clean job, but is, of course, expensive. It is advisable to have the bilge cemented under the engine, at least to the level of the top of the frames. A respectable limber may then be cut through the floor timbers above the top of the frame, instead of the tiny holes so often seen, which choke up with the shavings from a lead pencil.

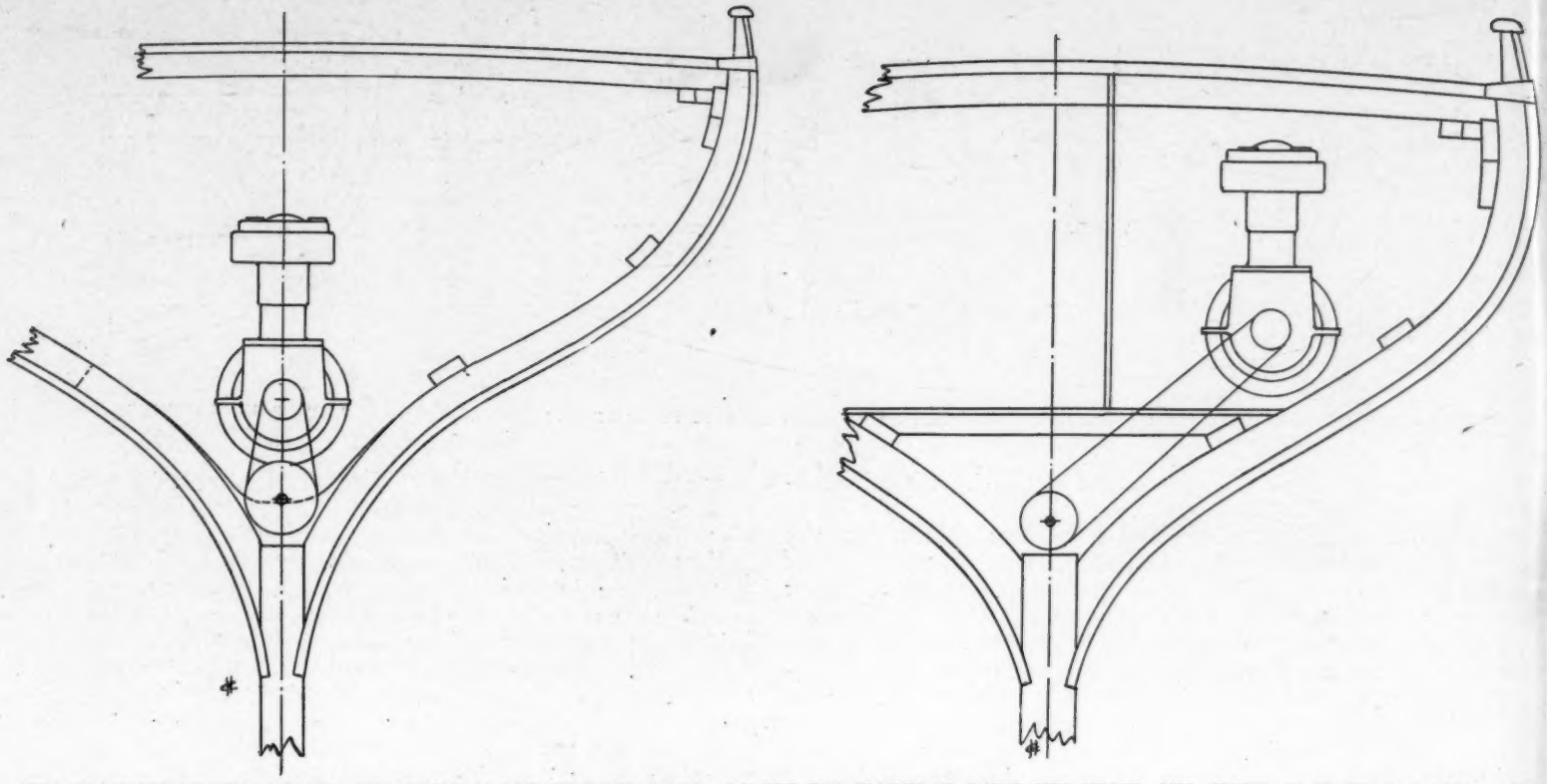
If the shaft has to be set at a rank angle it is a good plan to fit a universal joint and have the engine itself level. With the motor forward, two of these universals are advisable.

The gasolene tanks should be installed near the motor, and ought to be either of seamless steel or of heavy copper with joints double-seamed and soldered and fitted with plenty of swash plates. Galvanized tanks are entirely satisfactory if well made. Tanks must be well braced in position, and my personal preference is to

WITH SHAFT OFF CENTER THE STERN BEARING TAKES SOME SUCH FORM AS THIS



SHAFT OFF CENTER AND SUPPORTED BY A STRUT ABAFT THE RUDDER



TWO EXAMPLES OF CHAIN DRIVE; THE SHAFT IS LOW IN BOTH CASES. IN ONE THE ENGINE IS ABOVE THE SHAFT AND GEARED TO IT IN 1:2 RATIO. IN THE OTHER, SPACE IN THE WINGS IS UTILIZED

fit them so that any leakage will drain overboard and not into the bilge. This may be done by fitting a copper pan under the tank, the sides running up for several inches, and the pan having a drain from one corner through the side of the boat. The old naphtha launches used to have the tanks completely bulkheaded off and in a compartment open to the sea. Care must be taken if the tanks in an auxiliary are fitted to drain overboard that water will not back up into the drip pans when the boat is heeled. The disadvantage of having a tank bulkheaded off is that it is not easy to get this bulkhead gas tight in the first place, and extremely difficult to make it so after a repair job. Of course, the usual vent pipes must be provided and a cock or valve in each supply line close to each tank and others near the carburetor.

When designing an auxiliary it is a simple matter to shift a little tracing of the engine around on the plans until the most available position is found, when, if necessary, bulkheads may be changed or the whole cabin plan rearranged with eraser and pencil. When we come to the problem of installing a motor in a craft already built and in which no provision has been made for one, the case is quite different. Bulkheads and cabin fittings are up and must be disturbed as little as possible. We cannot shift a companionway from side to side without paying out good money to the builder. Nine times out of ten we have no drawings of the boat, and instead of locating the engine on paper we have to do it in the boat with a template and a two-foot rule, with a string for the shaft line. Each boat is different, and each problem has difficulties of its own.

When we come to bore the hole for the shaft we find that the original builder has carefully driven a number of stout iron, copper or Muntz metal bolts on or near the center line and our auger strikes these and we have to cut them off with a large chisel bar. This is a mean job, and we are apt to leave the stumps projecting in the hole to deflect the auger. It's surprising how much metal some of the old-time builders drove in the deadwood of their boats. In such a case we may cut into the deadwood from one side, cutting a groove half way through, and finding the bolts accessible to cold chisel or hack saw. When the groove is cut we must fit a piece in it, leaving a space at the bottom for the shaft, and fitting vertical metal straps over the outside, well fastened to this piece and to the deadwood. The straps are to take the place of the bolts which have been cut off.

It is sometimes simpler to avoid the bolt cutting entirely by bringing the shaft through clear of the deadwood, the only hole to be bored being one through the garboard strake. A block should be fitted inside of the garboard to form a landing for the stuffing-box. The stern bearing casting will then be of special design, or we may plant a block of wood on the side of the deadwood, bolting it well, and use a stern bearing of stock pattern. This block should be let in to avoid shim edges when it is dubbed fair with the deadwood.

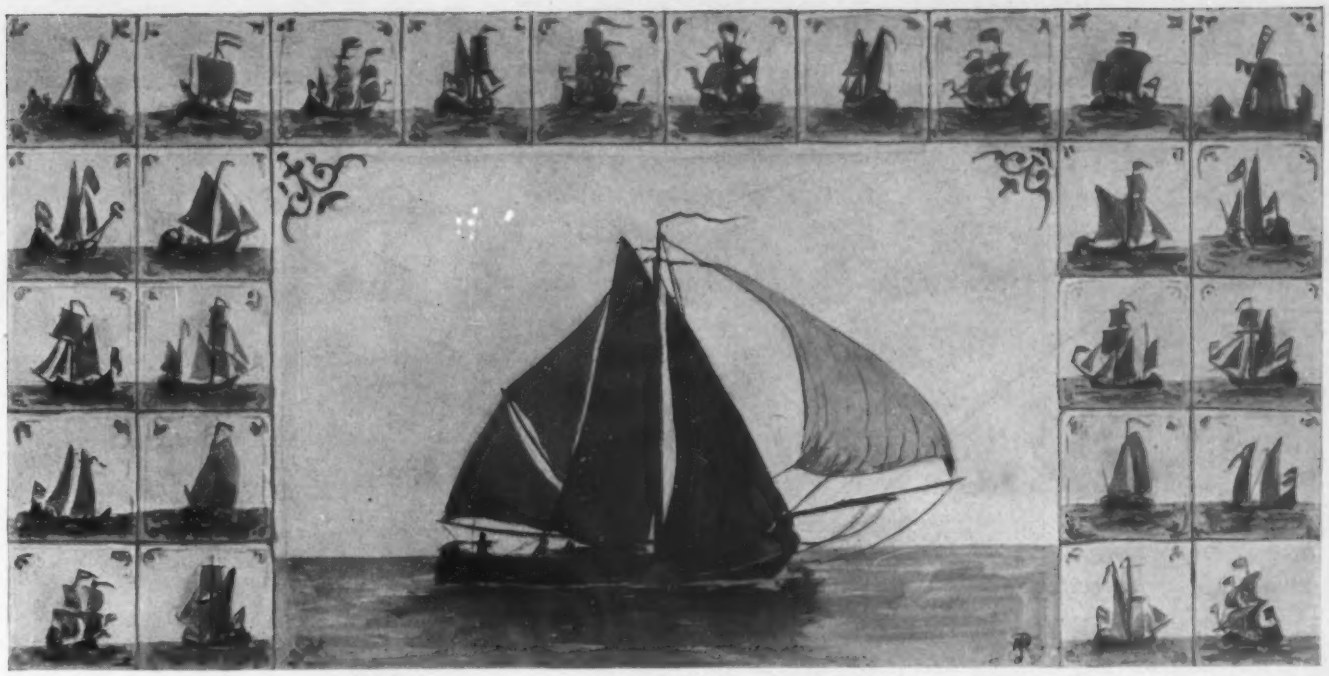
If the propeller aperture is cut entirely in the deadwood, or if the forward edge of it extends forward of the stern post, a vertical piece should be fitted to take the bolts for the stern bearing, as otherwise they would go into end wood, which makes an unsatisfactory job. More often the aperture is cut partly in the stern post and partly in the rudder. In such cases the opening in the latter must be large enough to clear the propeller when the rudder is hard over. The after edge of the opening must be rounded off, but the forward edge may be left nearly square. A two-bladed propeller may then be centered up and down behind it and its drag thereby reduced. A feathering propeller is also frequently used to minimize drag.

The propeller is sometimes placed abaft the rudder and clear of it, with a strut to support the shaft. This means more resistance than if the shaft were carried through the deadwood, but it is a simple job to install, much less expensive, and if a feathering propeller is used the resistance is not vital. The strut then forms the stern bearing and the stuffing-box is inboard in the usual location. The disadvantage of this plan is that the shaft is more exposed to damage from striking obstructions, and there is the resistance of shaft, strut and propeller to retard the boat when under sail, whereas the drag of a screw feathered behind the stern post is very little.

The proper type of propeller to install is a difficult question to settle. Some feathering wheels do well when new, but acquire considerable back lash after a season's use. Others, better designed and more perfect mechanically, continue to work extremely well and keep the blades true to pitch in their different positions. The general question of solid versus feathering wheels cannot be decided here, each case being a separate problem.

An auxiliary usually has a two-bladed propeller of large diameter in which the necessary surface is obtained without undue blade width. The revolutions must be kept low. Such a wheel, as mentioned above, may be placed up and down behind the

(*Continued on page* 100)



The Botter

Plans and Particulars

A. J. PAZOLT

HAVING been asked to give a description of my Botter yacht Santa Maria, in which I made the trip from Amsterdam to Ryde last summer, an account of which appeared in the December issue of YACHTING, I have prepared the accompanying plans and details in the hope that they may prove of interest to those to whom such craft are strange—the Botter being a type peculiar to the shallow waters of Holland.

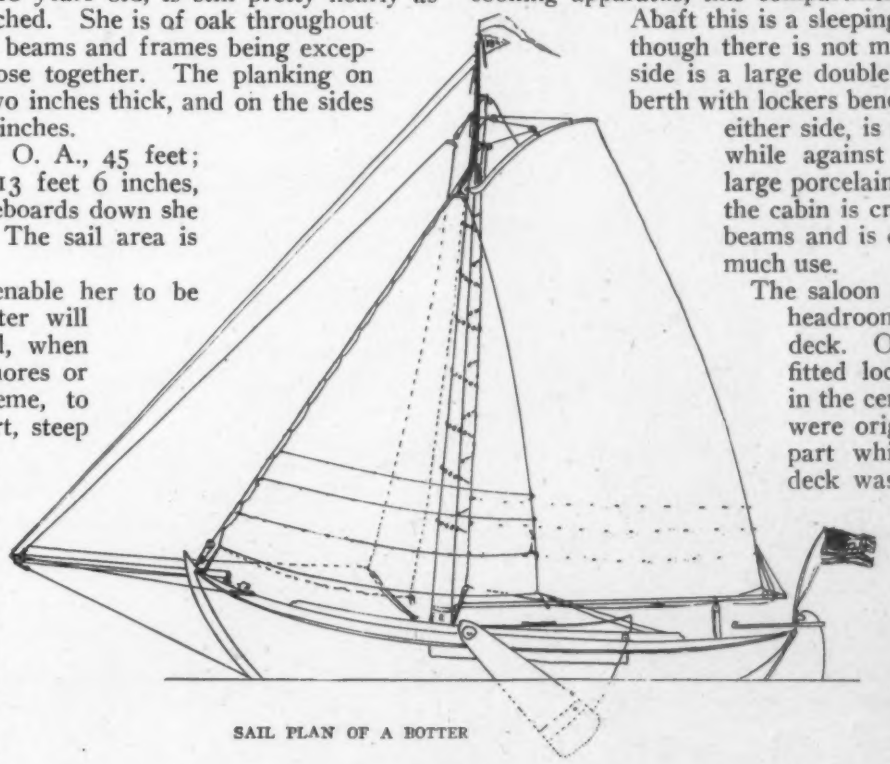
The Santa Maria was built in Monnickendam, on the Zuider Zee, in 1896, and, though 18 years old, is still pretty nearly as good as when she was launched. She is of oak throughout and very strongly built, the beams and frames being exceptionally heavy and very close together. The planking on the flat bottom is a good two inches thick, and on the sides from one to one and a half inches.

The dimensions are: L. O. A., 45 feet; L. W. L., 35 feet; beam, 13 feet 6 inches, and draft, 3 feet. With leeboards down she draws about 5 or 6 feet. The sail area is 1,000 square feet.

The flat bottom is to enable her to be beached easily, and a Botter will stand upright on the hard, when left by the tide, without shores or guys. The sheer is extreme, to make her drier in the short, steep seas of the Dutch coast, and the rudder is always hung outside. The sections are good and show power, yet are graceful.

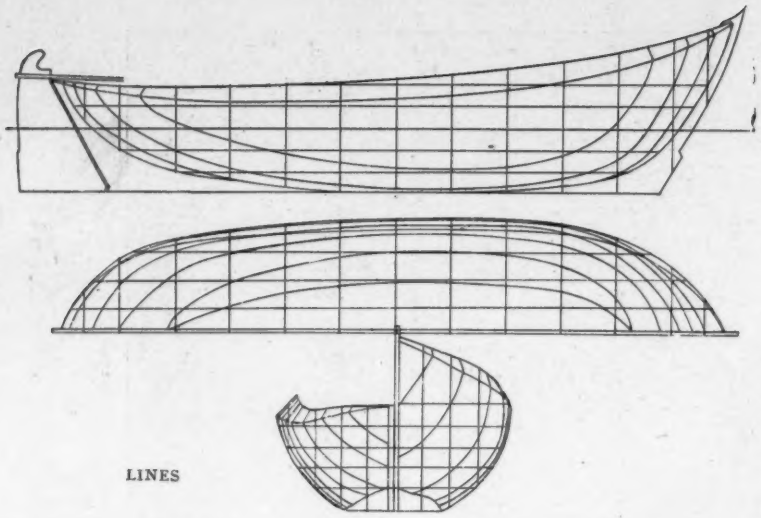
The accompanying lines are of the ordinary fisherman's Botter, from which the yacht differs only slightly. In the yacht the topsides do not tumble home as much, the flat bottom is wider and there is a keel about eight inches deep. The leeboards are not the flat planks that they look in the drawings, but are beautifully shaped, being tapered fore and aft, concave on the outside and cut on an obtuse angle on the inside.

The cabin or accommodation plan shows the roominess of these boats. The accommodations consist of a small fo'c'sle forward, with a bunk on the port side and locker berth on starboard side. Against the after bulkhead is a large galvanized water tank and cooking apparatus, this compartment serving also as the galley. Abaft this is a sleeping cabin, which is very roomy, though there is not much headroom. On the port side is a large double bed, and opposite is a wide berth with lockers beneath. Aft of these berths, on either side, is a large, deep hanging locker, while against the forward bulkhead is a large porcelain washbasin. As this part of the cabin is crossed by the huge main deck beams and is consequently low, it is not of much use.



SAIL PLAN OF A BOTTER

The saloon is very roomy and has good headroom, being under the low raised deck. On either side forward are fitted lockers for crockery, etc., and in the center is a sideboard. The seats were originally rather narrow, as the part which went in under the side deck was shut off by a hinged back, which I have since removed, making the seats very wide and comfortable, while the cabin looks much larger. In the center of the saloon is an oak swing table, with extension sides, and a locker under. The doors between these three compartments slide on



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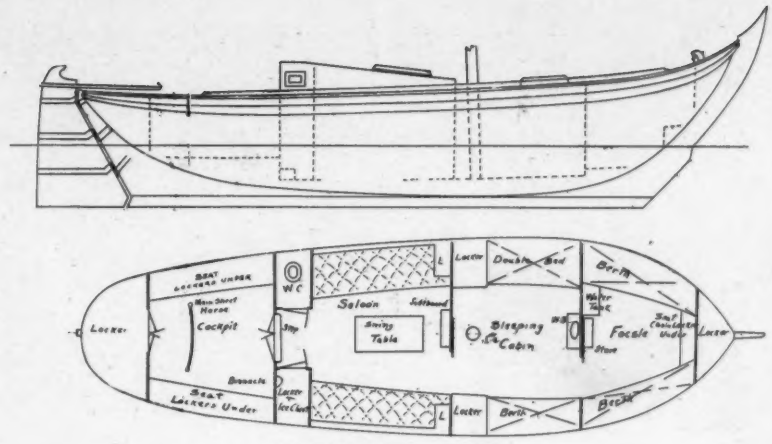


ACCOMMODATION PLAN

tracks along the bulkheads, thus taking up very little room, and there is no rattling and banging when the vessel is rolling.

Abaft the saloon, to port, is the lavatory, and to starboard a large, deep closet containing the ice chest, and with plenty of room for stowing all sorts of gear. On the after bulkhead of this is a shelf for the compass, with an opening to the cockpit, so that the compass can be seen by the helmsman.

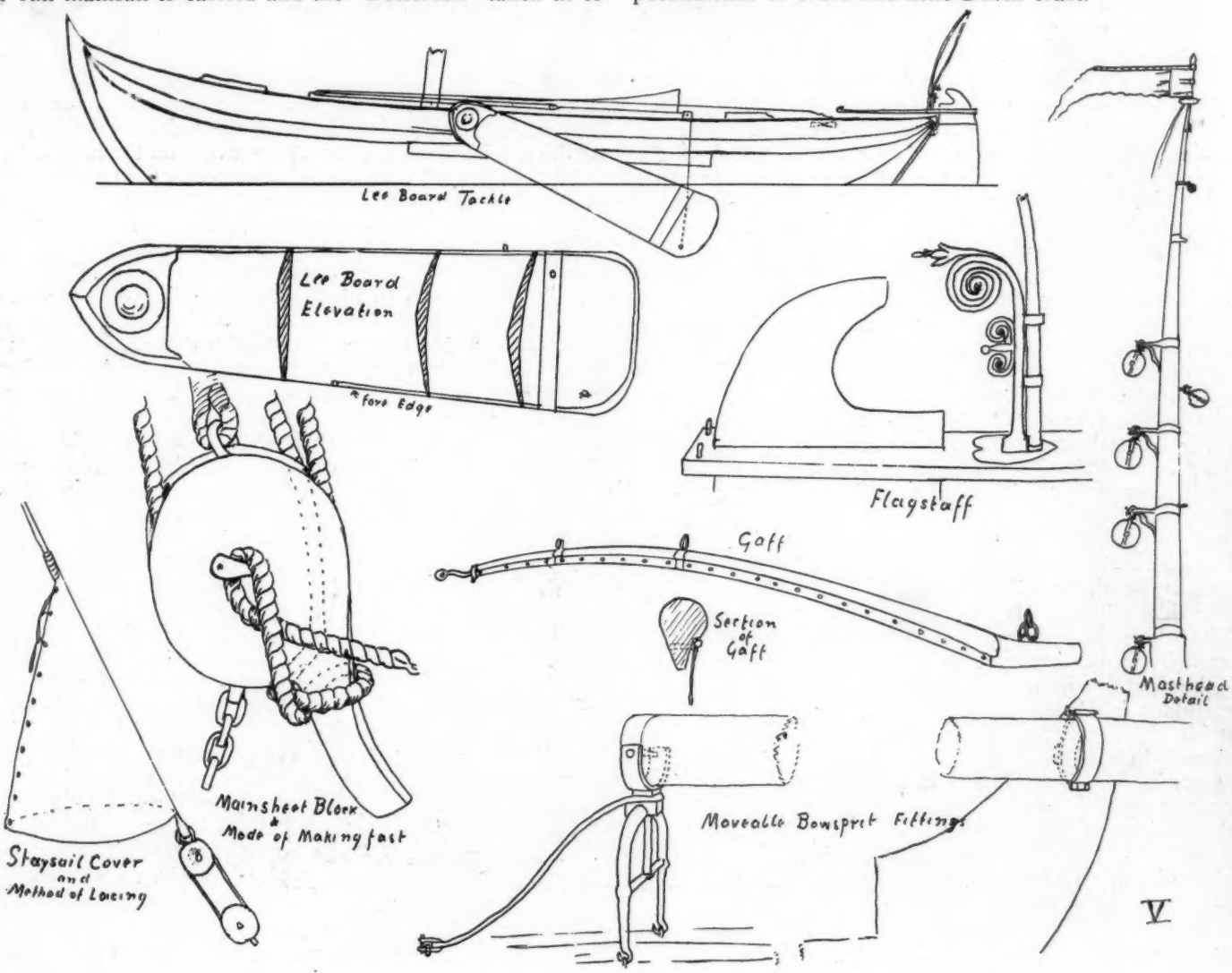
The cockpit is very large and comfortable, with seats on either side and lockers under, while there is also a large locker under the after deck.

Details of the rig are shown in the sail plan, though the jib which is shown is but seldom carried, the usual rig being mainsail and a large "Botterfok," or staysail. Under this she is so handy that I have discarded the bowsprit entirely. In strong weather full mainsail is carried and the "Botterfok" taken in to the third reef, which is then made fast to the fore sheet on the traveler; or the "Botterfok" is shifted and a smaller foresail set in its place. (The drawing here is not quite correct, as the third reef shown would come too far aft.)

The standing rigging consists solely of the forestay, the mast being so stout that no other stays or shrouds are required. Indeed, if they were carried they would be very much in the way of the big "Botterfok," which comes a good way aft. The rigging is all very simple.

In the last drawing are given details of some of the fittings peculiar to these boats. The main sheet block is particularly interesting. The gaff is also a lovely piece of work, having a pronounced crook in it and being worked entirely out of one piece.

I hope that the scientific readers of this little article will not be too critical of the drawings, as I am no draughtsman, and my only object has been to give as clear an idea as I could of the peculiarities of these fine little Dutch craft.



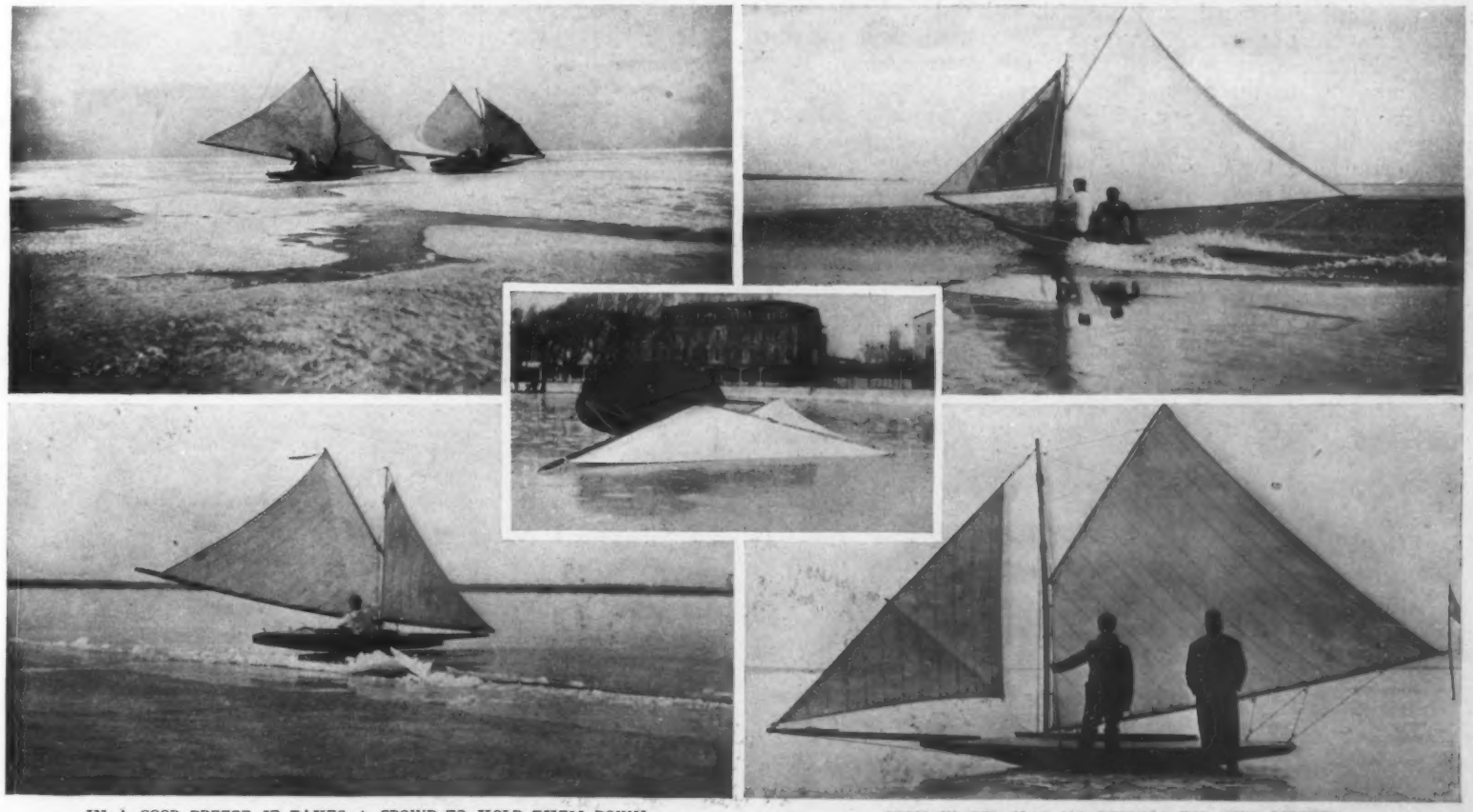
BELLPORT BAY YACHT CLUB ONE-DESIGN SCOOTERS LINED UP FOR A START ON JANUARY I

With the Great South Bay Scooters

NOT content with making use of the waters of Great South Bay by summer sailing, the Bellport Bay Yacht Club, of Bellport, Long Island, after successfully promoting several one-design sailing classes, has done the same thing with a one-design class of scooters for use in the winter. The Great South Bay at this point is some 3½ miles wide, and in the winter the ice is frequently in condition for the best of scooter sailing, the patches of open water that may appear here and there being easy for the scooter, especially if there is any wind. During the fall, plans for a one-design scooter were drawn up by Henry V. Watkins, the famous scooter builder of Bellport, and ten of these boats were taken up by members of the Bellport Bay Yacht Club.

The tryout and first race of the season of the class was held on Bellport Bay, off Captain "Bill" Kreamer's Hotel Wyandotte, on January 1st. The ice was in ideal condition, hard and smooth, and, though the wind was very light, good time was made round the course, which was triangular, sailed three times around. A number of the skippers had some trouble jibing around the home stake the first time, some of the boats wearing, others coming about, and still others refusing to do either. The winner turned up in No. 4, owned by Captain Kreamer and sailed by George Brown. R. Murdock came in second. Commodore Holmes, of the Bellport Bay Yacht Club, and a good-sized crowd were on hand to send the boats off on their first race. After the race, dinner was served at the Wyandotte. The ice remained good for several days, and some excellent sport was had.

The boats are fine-looking craft, with a fairly large rig,



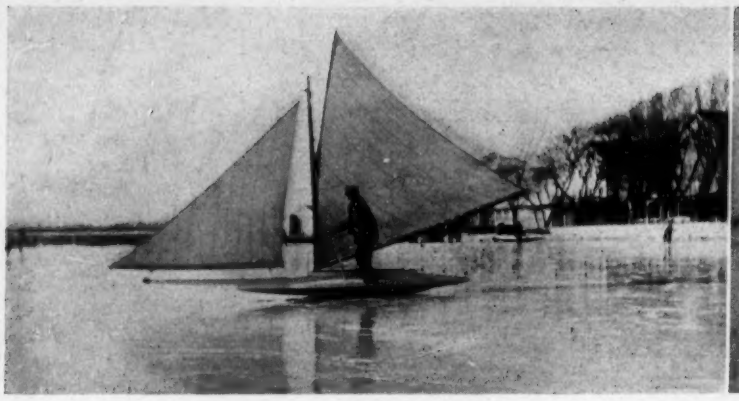
IN A GOOD BREEZE IT TAKES A CROWD TO HOLD THEM DOWN

OPEN WATER HAS NO TERRORS FOR THE SCOOTER

THE WAY A SCOOTER IS "MOORED"

OVER THE BUMPS

GEO. BROWN, WINNER OF THE BELLPORT RACE JANUARY I, AND COM. HOLMES



GETTING A SCOOTER STARTED

START OF THE RACE AT BELLPORT BAY, JANUARY 1

and are particularly fast in light weather. In addition to the two main runners, there is a very short bilge runner on either side, which comes into use whenever the boats are heeled over far enough to lift one of the main runners off the ice.

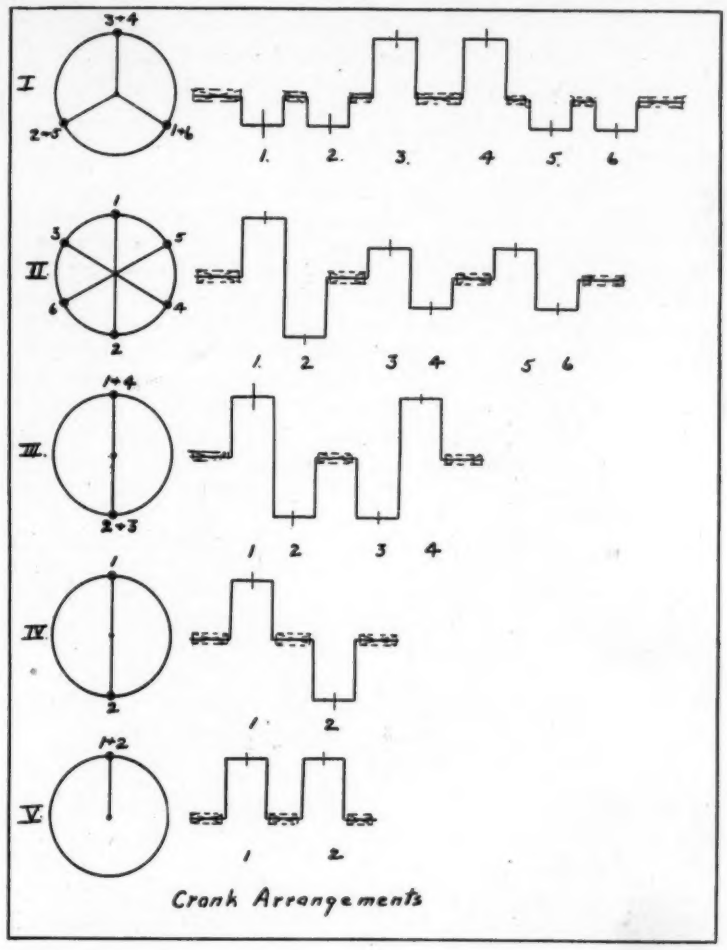
Crankshaft and Bearing Arrangements

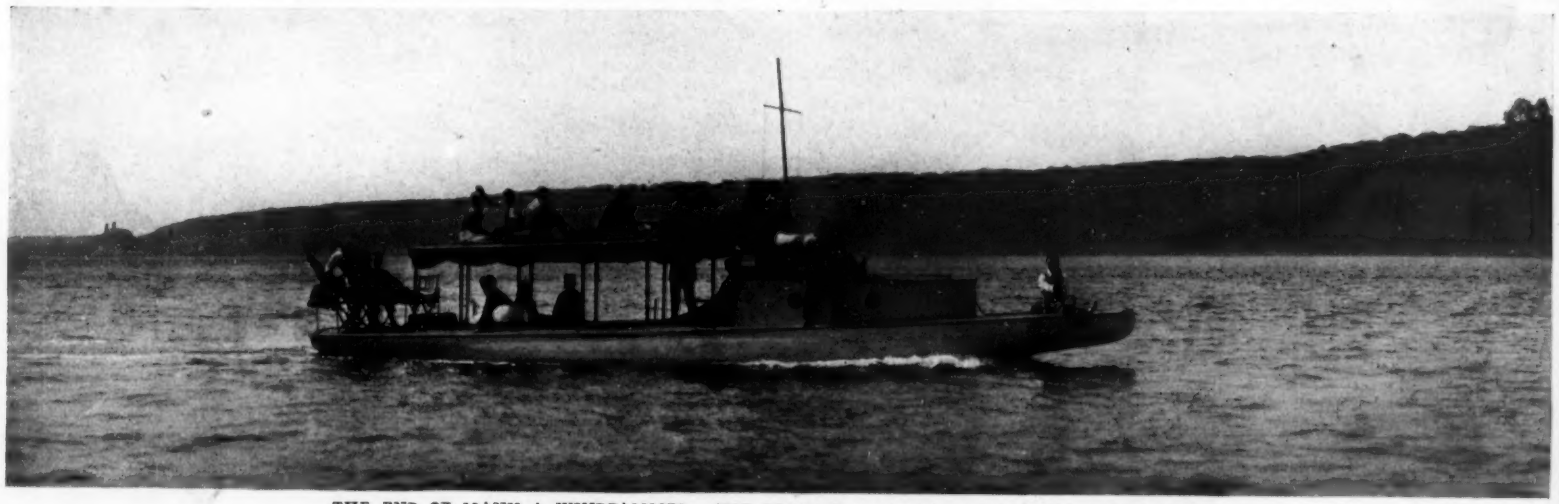
IN an article in YACHTING last month on the common practice in marine-engine design and manufacture, I showed the present tendency in design and the effect of compression, carburetion and design on an engine's efficiency. I also showed, as far as possible, the average fuel consumption in present marine practice. In this short article I will speak about the more common arrangements of crankshafts and bearings.

The diagram herewith shows the crank and bearing arrangements common in marine practice. No. I shows the common crank arrangement for six-cylinder engines. This engine has an excellent balance, the first and sixth piston rising and falling together; likewise the second and fifth, while the third and fourth work together. Thus each piston is balanced by another equally distant from the center—practically a perfect balance. In this arrangement seven bearings are general, as shown, although sometimes only four are used. This arrangement is the same as two 3-cylinder engines coupled together.

Number II shows another 6-crank arrangement sometimes adopted. Here the first and second cranks are opposed, as are also the third and fourth, and the fifth and sixth. This gives a fairly good balance, but not as good as No. I, and is not used as much. Four bearings are general in this case. This arrangement amounts to three two-cylinder engines coupled together. Twelve-cylinder engines are made up of two six-crank arrangements of either I or II, generally I. Number III shows the four-crank arrangement, the cranks all being in one place, and by comparing this with I and II it will be seen that it has also practically a perfect balance, although not as uniform a turning moment as the 6-cylinder engines. Either three or five bearings are used; in rare cases only two bearings are used, but this is not to be recommended.

Numbers IV and V show two-crank arrangements. Here IV is the better, as in V there are bad vibrations set up by the two





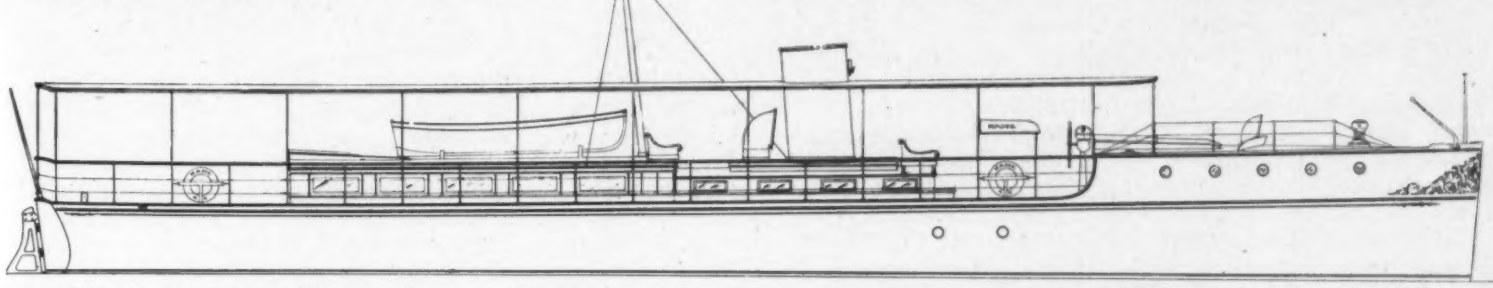
THE END OF MANY A WINDJAMMER. NOT BEAUTIFUL, PERHAPS, BUT STILL VERY USEFUL

pistons rising and falling together. The only objection to IV is that both cylinders have to be fired in the same revolution, giving two impulses followed by two idle strokes. (The reader should not confuse crank arrangements with firing order, which is an entirely different matter and of much less importance.) Arrangement IV, with opposed cylinders (i. e., one on each side of the shaft), combines good balance with an explosion every revolution. Eight-cylinder engines are made up of two four-crank arrangements generally set at 90 degrees.

It will be seen from the foregoing that in order to have balance an even number of cylinders is best. For this reason, three-cylinder engines are not, as a rule, in as common use as 2, 4 and 6 cylinders. The study of balancing, however, is quite apart from the purpose of this short article; all that is intended here is to point out the common crank arrangements and the primary reasons for them.

LAWRENCE B. CHAPMAN.

Enchantress II—A New Express Type Cruiser



THE trend of power-boat design for the past few years has been toward the express cruiser type, and one of the most successful boats of this type is the Enchantress, designed in 1914 by Bowes & Mower for Louis Burk, Esq., of Philadelphia. A picture of this boat appears elsewhere in this issue. The boat herself will be exhibited at the New York Show. The success of Enchantress has led to the placing of the order for a larger boat of the same type, which will fly Mr. Burk's colors and be called the Enchantress II.

The plans of the new yacht are given herewith, and show a very handsome boat of the modern type, which has been developed by Bowes & Mower. While the arrangement features of the first Enchantress have been retained to a large extent, the outboard profile has been developed into a boat more along the lines of Wilfreda, which attracted very favorable attention last season.

The new Enchantress is 74′ 4″ over all, 73′ 3″ L. W. L., 12′ 9″ extreme breadth and 3′ 8″ extreme draft. She will be driven by two 6-cylinder Harbeck Loew-Victor engines, 7½″ x 8½″ bore and stroke, and developing 180 horsepower at 800 revolutions per minute. This will give a speed of 20 statute miles per hour under trial-trip conditions.

The outboard profile shows a high raised deck forward extending aft to the bridge deck. The engine room has a low trunk, and the after cabin has a slightly higher trunk cabin. The after deck has a large cockpit, which is left open for deck chairs.

The main cabin is entered from the after cockpit and is 16 feet long, with extension transoms on each side, back of which are arranged shelves and bookcases. The transoms are each 12 feet long, so that they can be made up for four berths, and there is a permanent berth athwartships at the after end. Just forward of the main cabin, on the port side, is a large galley.

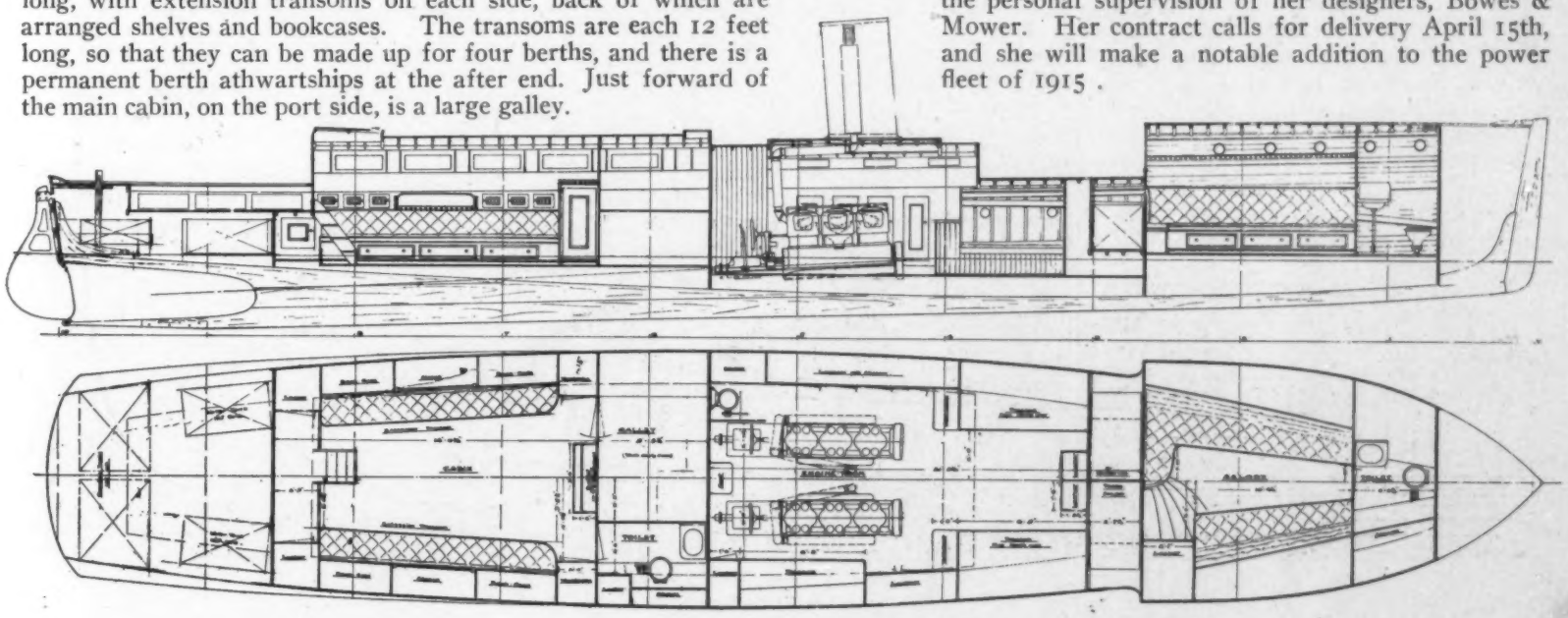
The engine room is amidships, with double, water-tight bulkheads at both ends. The engines exhaust in the funnel, which also provides engine-room ventilation in conjunction with the two large ventilators. The crew's quarters are at the forward end of the engine room, and have transoms, pipe berths, lockers, etc.

The forward saloon will be used as a men's cabin and smoking room on day trips when the after cabin is given over for the use of ladies. When cruising, the transoms can be made up as berths, so that this saloon may be used as an owner's stateroom. Forward of the saloon is a toilet room.

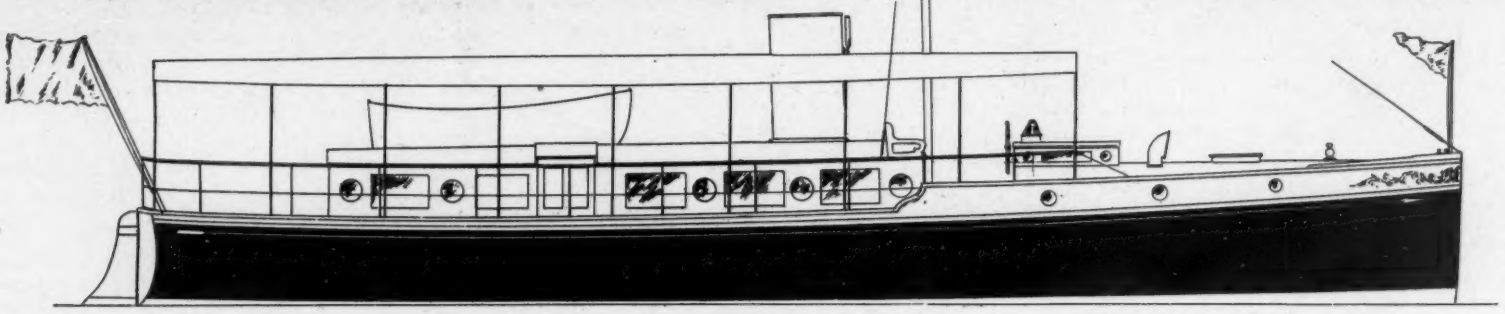
Gasolene will be carried in four separate tanks; two under the bridge deck having a total capacity of 300 gallons, and two under the after deck, having a capacity of 275 gallons.

The boat is built fairly light, but ample strength is provided by a carefully designed system of construction. The hull will be double planked, with an outer skin of mahogany over an inner skin of Washington spruce. The frames are all steam-bent, and are placed 10″ in the ends of the hull and 6″ in the machinery space. In addition to the usual bilge and side stringers, there is a "hogging" stringer carried the full length of the hull to give longitudinal strength. As the boat is to be used largely in shallow water, the keel is carried aft to protect the propellers and also to give a heel bearing for the rudder. The deadwood is cut away to allow clear water to the wheels and to facilitate handling.

The Enchantress II is under construction by the Mathis Yacht Building Company, of Camden, N. J., and is being built under the personal supervision of her designers, Bowes & Mower. Her contract calls for delivery April 15th, and she will make a notable addition to the power fleet of 1915.



A 50-Foot Power Cruiser at the New York Show



THE Luders Marine Construction Company will have at the Motor Boat Show the largest boat exhibited there. This is a cruiser that on a small scale exemplifies the type of boat this company has featured for the last few years—a boat combining in an unusual degree seaworthiness, comfort, appearance and speed. With a length of 50 feet, comfortable accommodations are obtained for a party of four, exclusive of the crew. The plans of this boat are published herewith.

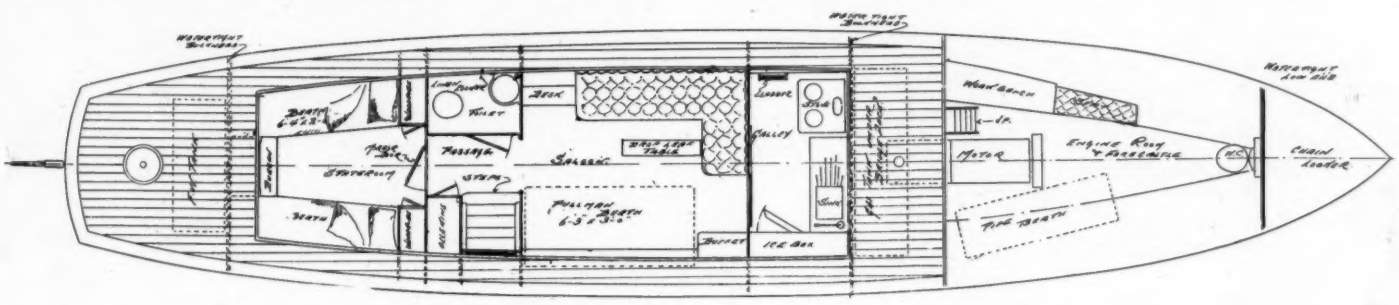
The boat is arranged with the living quarters aft, the crew's quarters and engine being forward. The two sections are separated by a water-tight bulkhead. The owner's quarters are entered from a side companionway into a mahogany-finished vestibule. A stateroom is abaft this vestibule, arranged with two beds, mahogany bureau, mirror and wardrobe. A well-appointed toilet room, finished in white tiling, also connects with this vestibule. Forward of the vestibule is the main saloon. This room, which is used as a dining room and is fitted up with a mahogany buffet and glass cabinet, mahogany desk and a long, upholstered "L" settee that can be extended into a wide bed, which, with its spring cushions, is as comfortable as could be desired. In the center is a folding table, while to starboard is a folding Pullman berth of extra width, with regular springs and mattress.

The galley is immediately forward of the saloon, and is of unusually generous size for a 50-footer.

A little forward of amidships, with its reverse gear under the bridge deck, is located the 25-35, four-cylinder, heavy-duty Sterling motor. The gasolene tank, with a reserve compartment for emergency, is located beneath the bridge deck, and is filled through a deck plate. Accommodation for two men is provided in the forward part of the boat, a toilet and washbasin being installed here.

The boat will be rigged with a pole mast and stack, with a long, flat awning extending from the bridge deck right aft, over the quarter deck. She is lighted by electricity, tungsten lamps being employed, and the care in which the installation has been worked out is shown in the fact that a light has been installed in the lazarette.

The speed under cruising condition will be 12 miles an hour. Her dimensnons are: Length over all, 50 feet; beam, 9 feet 6 inches, and draft, 3 feet.

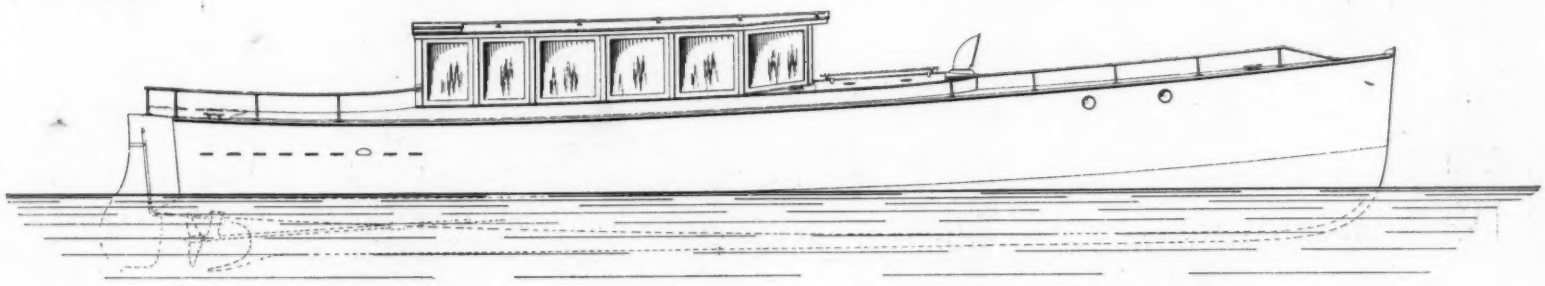


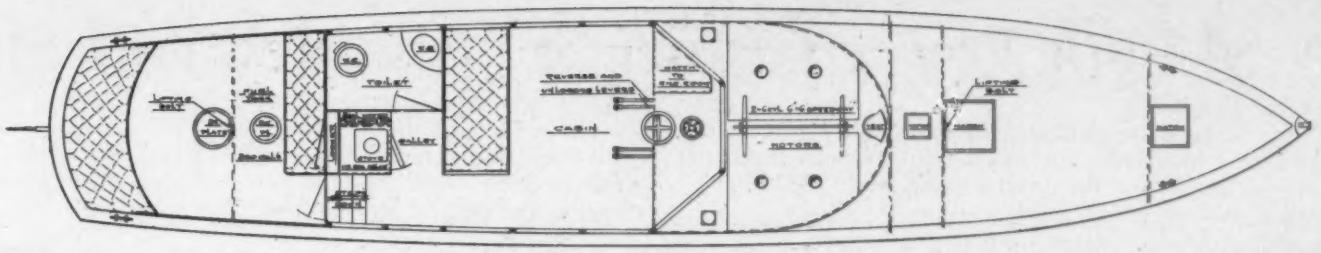
Shadow, a 48-Foot High Speed V-Bottom Day Cruiser

THE Gas Engine & Power Company and Chas. L. Seabury Company, Cons., Morris Heights, N. Y., has recently added another boat to the large fleet already owned by Mr. Carl G. Fisher, of Indianapolis, Ind. This new boat is also named the Shadow, and the adherence to this name in so many of his boats indicates a partiality for ghosts on the part of Mr. Fisher. She is certainly ghostlike in her ways, for she is painted jet black, and she drifted along at a speed of 22.5 miles per hour on her trial trip in December with a strong northwest wind kicking up the Hudson and forming ice on the boat wherever the spray struck.

This new boat was built as a high-speed day cruiser for use principally in Florida waters, where Mr. Fisher has large interests, and she is a departure from the usual round-bottom displacement construction, being a V-bottom type with lapstrake topsides and double planked on the bottom.

The principal dimensions are: Length over all, 48 feet; length of water line, 47 feet 3 inches; beam, 9 feet; draft, 3 feet. The motor is just forward or amidships, partly under the forward deck and partly under a hinged hatch covering the forward part of the cockpit. Abaft this is a sort of steering cockpit covered by





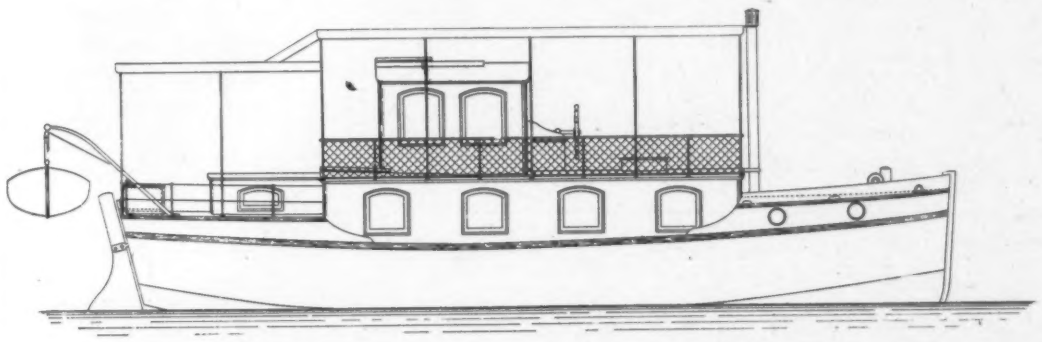
an extension of the standing roof of the glass cabin house amidships, so that protection is assured to the helmsman in bad weather. Under this cabin house is also a toilet room, small galley and two awthartship transom seats. The after one of these seats is in reality a shelter seat under an extension of the cabin roof, so that it is practically out of doors, yet sheltered from the weather. There is a small cockpit aft, with a broad seat across the stern of the boat. The power consists of two six-cylinder, 6 x 6 Speedway motors, which are expected to develop a speed in the boat of 26 miles per hour under favorable conditions.

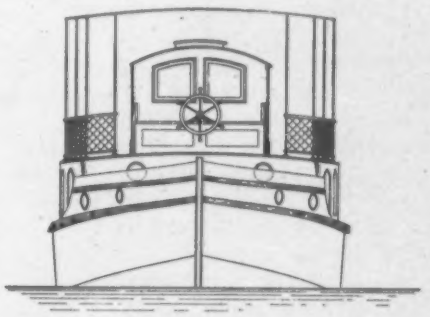
A 39-Foot Houseboat with All the Comforts of Home

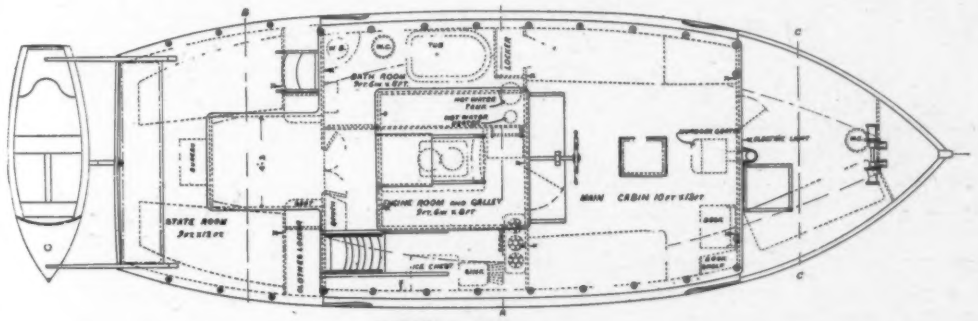
THE power houseboat is rapidly coming into more general use and bids fair to displace the average power cruiser for smooth-water use (except where a man wants high speed), on account of the additional room and comfort that can be obtained on the same water-line length. To show what can be done in a small boat of this type, Mr. C. H. Dodd, of Boston, Mass., has worked out the accompanying design of a boat which, while only 39 feet long over all, has 6 feet 6 inches headroom throughout and as much accommodation as the average city apartment. The other dimensions are: Water-line length, 36 feet 8 inches; beam, 14 feet, and draft, 3 feet 3 inches. She is of V-bottom, or deadrise, model, and, in spite of her freeboard, she has enough draft to make her a good sea boat.

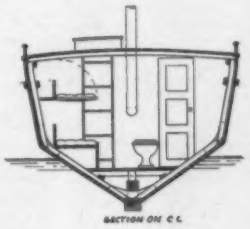
There is a forecastle forward, entered by a hatch through the deck, which has two pipe berths and a toilet in it. Then comes the main cabin, 10 feet x 13 feet, with wide transom, sideboard, desk and open grate. The combination engine room and galley is amidships, being 9½ feet long x 8 feet wide. A 16-horsepower, heavy-duty, four-cycle motor would be about the proper power and would give a speed of approximately 7 miles per hour, while 20 horsepower would drive her 8 miles. To port of the engine room and separated from it by a bulkhead is a bathroom, with tub, toilet, washbasin, chest of drawers and all conveniences, including a 20-gallon hot-water tank.

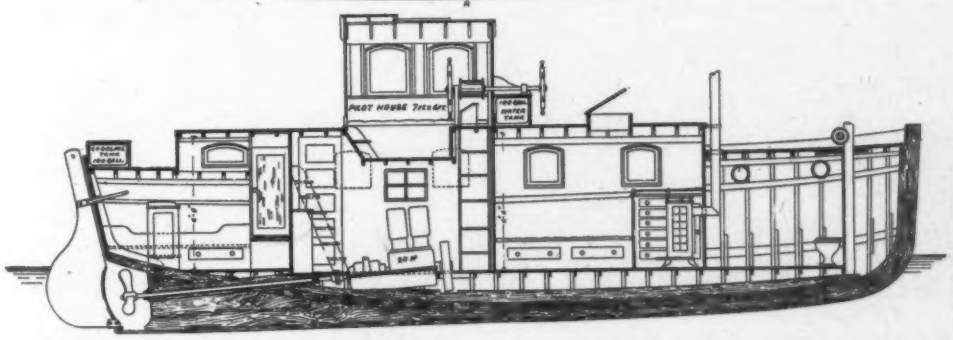
Abaft the engine room is a large double stateroom, 9 feet x 12 feet, with headroom under the extension of the raised cabin house. This room is amply provided with lockers, bureaus, drawer space, etc. There is a small pilot house on deck, which adds greatly to the comfort of the boat. This house is dropped 18 inches below the deck line to save height, and, as this depression is directly above the engine, it does not affect the accommodations below. There are two steering wheels, one outside of the pilot house, with a seat over a water tank, and one in the pilot house. The pilot house can be used as a stateroom, as it

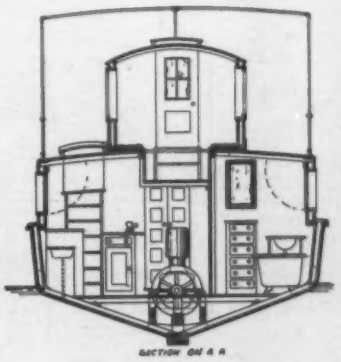


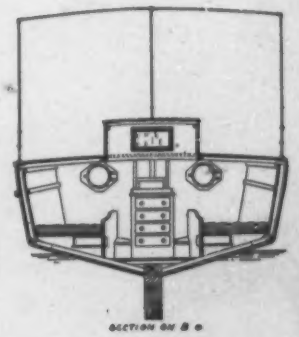












has a 7-foot transom, and the boat will sleep eight people, including a crew of two.

The lines of the boat are fine, and, in spite of her great beam, she should be easy to drive. An awning covers both the upper deck on the cabin house and the quarter deck, while the "dink" is carried on davits aft.

Such a boat as this could be built and equipped with a 16-horsepower engine for about $4,000, and, with a 20-horsepower engine, for about $400 additional, these figures being for a first-class job, with the inside sheathed with cypress, finished bright. For from $150 to $200 more she could be equipped with a switchboard, dynamo and electric lights throughout.

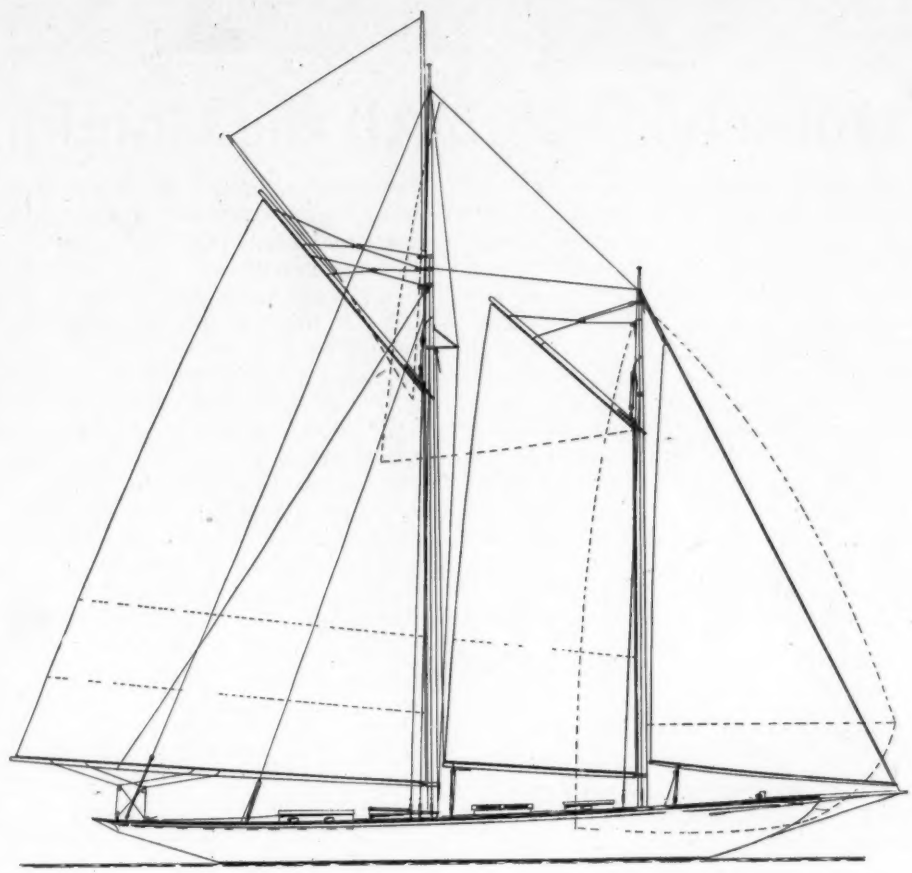
A 39-Foot Waterline Fast Cruising Schooner

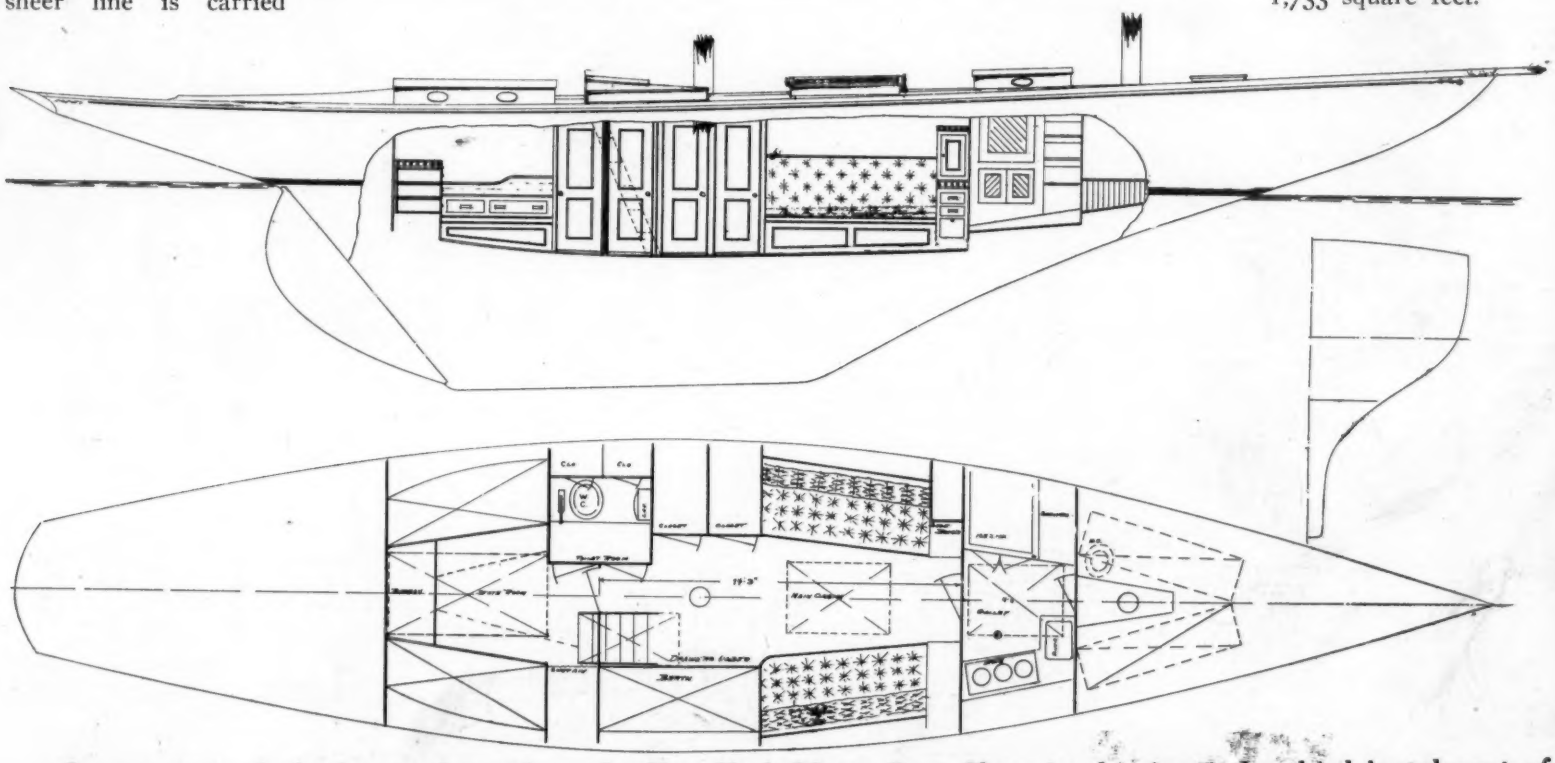
THE accompanying plans from the board of John G. Alden, of Boston, Mass., show a rather original design for a proposed 39-foot waterline cruising schooner, and will bear careful study, as the little boat has much to recommend it. One of the Long Island Sound clubs has been considering building several of these boats for use as a one-design class, and they desired a *real* cruiser, and not a semi-cruiser, as is the case with the average racing boat.

The plans show a flush deck with full headroom throughout, yet without undue freeboard or spoiling the proportions, and an extremely simple rig. There is a break in the deck where it drops down about 6 inches, just abaft the main companionway, although the sheer line is carried along in a fair line. This gives bulwarks aft of this point about 6 inches in height, while forward of it the deck is flush with the rail except for a slight foot rail. The interior is especially well arranged, giving sleeping accommodations aft for five, with a double stateroom and large saloon.

For racing, a club topsail is shown, but there is a fair-sized rig in the lower sails, and the boat should be fast. Arrangement is made to install auxiliary power if desired. For a simple, easily handled cruiser, with a good turn of speed and one which can be most economically maintained, this design is hard to improve upon.

The principal dimensions are: L. O. A., 59 feet; L. W. L., 39 feet; beam, 12 feet 5 inches; draft, 7 feet 9 inches; sail area, lower sails, 1,733 square feet.





On account of the space devoted to the New York Motor Boat Show in this issue the third instalment of The Adventurer's Corner is put over to the March number. In that issue the Old Timer tells of a filibustering expedition in the Gulf of Mexico. Don't miss it, as it is one of the best of the series.

How to Build the 22-Foot Auxiliary Cat Punkin Seed

By RICHARD B. COOK

Part III

Deck Framing

COMING next to the deck framing, make a template of the deck crown, using a board about ⅞″ x 10″, and sweep the crown on it as shown in Fig. 13. First lay off the greatest beam on deck, A B, and at the center erect a perpendicular equal to the extreme crown, DC. Connect D and B. Draw EB perpendicular to DB, and DE parallel to AB. Divide DB, EB and DE each into, say, four equal parts, 1, 2, 3, etc. Join 1′ and 1″, 2′ and 2″, etc., and from 1, 2 and 3 draw lines to D. The intersections (marked x) fall in the arc of the crown. Plot these same heights up from AC, and sweep the arc with a batten.

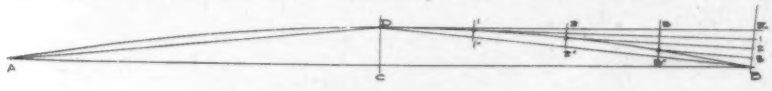
This template can be used as a pattern for the top edge of all the beams and is also useful in determining the height of the clamps, fore and aft stringers, etc. Now saw out the double beams, one at the forward end of the cabin, one at the after end of the cockpit, and two in the bridge deck. These can be cut at the mill, and time saved thereby. Cut them to length and clamp in place.

Now remove the moulds and the clamp can be fitted and fastened in place with fastening No. 2, Fig. 10. Later the shelf goes in and fastening No. 3 secures it. You will note from the sketch that the fewest possible fastenings are put in the frame head, as an excess of them at this point tends to reduce rather than increase the strength of the structure. Note also from Fig. 10 that the deck beams are notched down ½″ into the clamp, and that the shelf comes up snug under the beams. These may be placed exactly by using the crown template with a short dummy beam held under it. Fasten the beam to the frame head and shelf. It is customary to chamfer off the lower corner of shelf and clamp, or at least to run a bead along them.

The breasthook and transom knees should now be fitted in and the shelf and clamp fastened to them. The fore-and-aft carlines may now be put in, the ends being dovetailed into the double beams. You may find it necessary to steam these before they will take the proper bend. The regular beams may now be put in. Those along the sides of the cabin and cockpit should be dovetailed to the fore-and-after. If this looks like too much work, put in about three ⅜″ bolts at regular intervals, each one close to a beam with one end engaging a frame head and the other the fore-and-after, so that the narrow strip of decking will hold its shape. These bolts will be useful, even if the ends of the short beams are dovetailed

Place the deck- and hanging-knees as shown on the deck frame plan. Do not omit any of them, and see that they are securely clinch-bolted to beams and clamps. The deck knees are intended to lie on top of the clamp and fit against the sheerstreak. As soon as the beams are fastened, cut the frame heads off and bevel the top of the sheerstreak to suit the crown. Leave the stem head sticking up 6″ or 8″.

We will now take up the matter of decking. The first step is getting out the plankshеer, or outer edge of the deck, sometimes called the covering board. Most boat-builders make this of two or three lengths, scarphed together. In building my first boat I got the idea that it would be a good plan to make this in one piece each side. I consulted an authority and was told that I was crazy. However, I got away with it, and have since found that others have done the same. This certainly makes a neat job and ties the boat together. The plankshеer I put on was 1⅜″ x 4¾″, so there should not be much trouble in putting one only 1¼″ x 3½″ on "Pumpkin Seed."



Laying Off the Deck Crown
Fig. No. 13

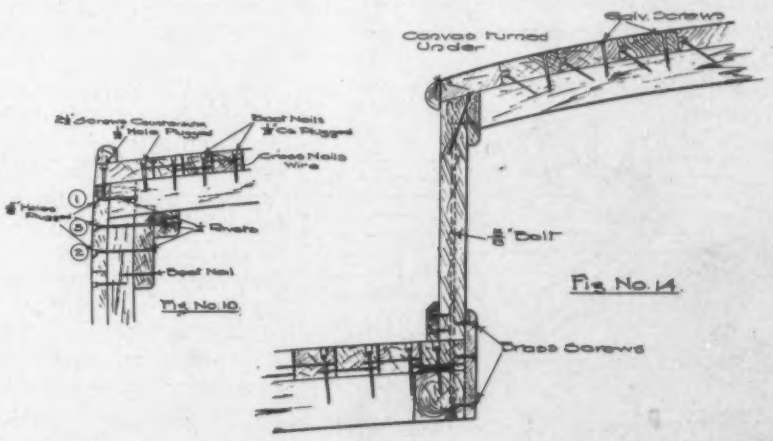
Take two 2″ x 4″ studdings and lash or clamp them against the sides of the bow, making a pocket on deck into which you can slip the ends of the plankshеer. All along, at intervals of four or five frames, screw or clamp a substantial block to the deck beams, allowing just the width of the new board on the outside, or a shade less, so that it may project and be planed off absolutely fair. Now lay out all the clamps you have or can borrow. Shove the covering board into the steam box as far as possible, say 10 or 12 feet. This is to go at the forward end, where the curve is the most abrupt. The rest should spring cold. You will have to have some help with this job, and must work quickly. When the board has steamed sufficiently, slip the forward end against the 2 x 4's, and swing into place against the blocks. Then clamp down and fasten with temporary nails in the places where the permanent fastenings are to go. Needless to say, the bevel against the stem head will have to be cut before the plank goes in the steam box, which can be done quite accurately with the aid of the bevel square. If it is found, after the plank is cold, that the bevel is not quite correct, remove all the nails holding down the board, but leave it secured by the clamps, then run a saw between the stem head and the plank end and hammer up the after end of the plankshеer. Hold a wooden block on the end when hammering, so as to run no risk of bruising or splitting the plankshеer. You will find this will bring it up to a perfect fit.

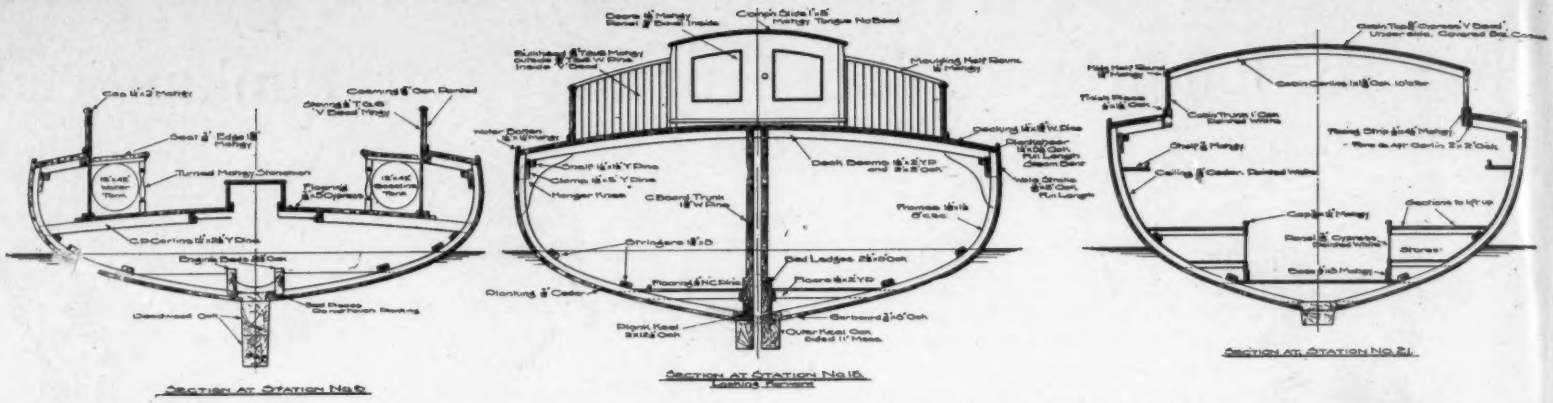
Fasten the plankshеer to the sheerstreak and the deck beams, not to the frame heads. The fastenings should be 2″ galv. screws. See Fig. 10.

The king plank is the next undertaking. This will have to be at least ⅝″ thicker than the decking to allow for the crown. The beams are flattened off where the king plank rests, and the crown worked out after the decking is complete. The king plank should be rabbetted so that the deck ends may rest over its edges.

A very pretty job may be made by "nibbing" in the ends of the decking as shown on the deck plan, as feather edges are thereby avoided. The amateur should have no trouble with this. Be sure to cut in the angles for each plank as you go along, and do not do them all at once, as the widths may vary ever so little and throw you off in the end. The remainder of the decking needs little explanation. It is to be preferably of white pine, and you begin laying it at the plankshеer and work inboard. If you can get the lumber in 14- or 16-foot lengths you can distribute the butts nicely; 20-foot lengths are hardly to be expected, but would be fine for the sides.

The decking should be beveled slightly on the top edges to allow for caulking, just the same as explained for the planking. In





making the butts it would pay to take time to put in little stop waters crosswise of the butt and set up tight with varnish. It is a hard matter to calk deck butts properly. Fasten the decking to the beam with boat nails, and to each other with long wire nails. Counterbore for the boat nails and plug the holes the same as for the outside planking. Get the grain of the plugs in line with the grain of the deck plank.

A beam clamp is a convenient tool for decking. It resembles a chain clamp, except that a rigid beam is substituted for the chain. If this is not to be had, you can wedge the planks together in the same manner as suggested for the outside planking.

Be sure that the innermost seam in the side deck does not come under the cabin trunk, even if you have to use a wider plank at this point. A seam here only invites a leak. (See Fig. 14.) Also be sure to caulk the deck before the trunk goes on, as you cannot get at the deck ends at the forward end of the cabin after the trunk is on. Boat builders usually caulk only a few inches of each seam at this point, as they like to leave the deck caulking until the last minute to allow the wood to dry out as much as possible.

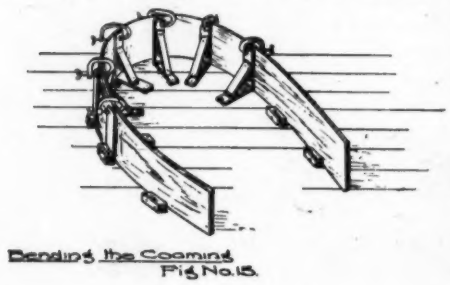
As to caulking the deck: If you have made a very good job you can probably do this yourself. Instead of using an iron, as for the hull, get a roller, which is made for the purpose, and the cotton can be rolled in in a short time. Putty it with white lead putty or a good marine glue or seam composition.

Cabin Trunk

The trunk is to be of oak, a full inch in thickness. Fig. 15 shows how it is bent after steaming. Fig. 14 shows it in place. Clamp a few uprights to the inner face of the fore-and-after and fit the trunk to the top of the deck around the opening. Keep it clamped to the uprights and tap down with the hammer. A perfect fit may be obtained by taking paint or chalk impressions on the high spots, as described for the trunk logs. The upper edge may then be cut to conform to the plans, and the trunk be bolted in place with ⅜" bolts clear from the top to the under side of the fore-and-after. Take up on these bolts until the white lead oozes out all along. On account of its shape, the trunk will take a wide plank to make it.

In setting up the trunk, try to get it perpendicular all around, or raking a trifle inward. If noticeable, this gives a rather "shippy" appearance, while the raking out is inexcusable, and looks like the deuce. The cockpit coaming goes on the same as the trunk.

We may now set up the after bulkhead of the cabin, first sawing and placing the end cabin carline, which is to take the top of the bulkhead. The crown of this carline can be taken from station No. 15 of the Construction Sections, and it should run clear across, as though there were to be no companionway. A sill should be set on deck and rabbetted to take the bulkhead. The bulkhead is better made of two thicknesses of tongued and grooved material, one covering the seams of the other.



Bending the Coaming
Fig. No. 15

Take a piece of 2" x 4" spruce to make a temporary strong back for the cabin carlines. Run this fore and aft along the center line, securing it to the bulkhead carline and to the inside of the forward end of the trunk. In order to avoid the appearance of the cabin top sagging, this beam is given a crown of about 1½" in its fore and aft length. Notch it out for every carline, also notch out the trunk to take the ends, as shown in Fig. 14, being sure not to come through below where the canvas will turn over. The carlines are now steamed and bent on the form or on the floor, to the greatest crown, and later shaped up in place. Secure the ends with screws and bevel the top of the trunk to conform to the crown of the cabin top.

We may now begin to lay the cabin top. This is to be of T. and G. cypress or white pine, laid parallel to the center line, starting inboard and working outboard. It is well to fasten this down with screws, as the carlines are light and nails are apt to show out and split them.

It is quite a trick to lay the canvas smoothly over the trunk. Most any sail-maker can supply you with this in one piece. He may have to send to the mill for it, so order well ahead.

The cabin top should be thoroughly painted with at least two coats of thick white lead and oil and the canvas stretched on dry and tacked down all around the edge while the last coat of paint is wet. Don't try to do this alone, but get two or three to help. Do not cut out for the companionway until the runners are screwed down and the fashion piece is in place. The canvas then is turned *up* and securely tacked.

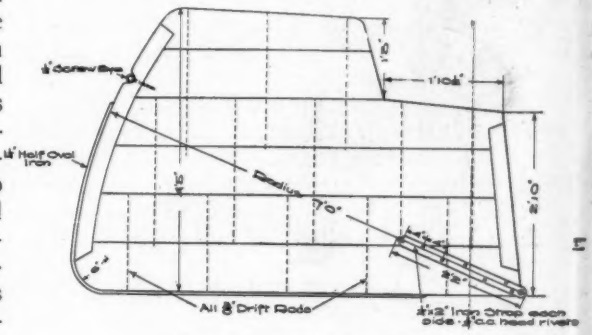
The cockpit flooring is laid, to all intents and purposes, in the same way as the main deck.

You will probably want to cut the lights in the trunk as soon as possible so as to get light inside, and this brings us up to the selection of port lights. In the list of hardware shown later you will note two kinds of hinged ports shown. If the prices do not seem beyond your means, I certainly recommend getting one or the other. The ones with the double ring and barrel are by far the most shipshape. If you decide not to use brass ports you can draw two sizes of ellipses with a string and pencil and cut them out of the sides. Make a little rabbet into which to set the glass, and putty up around the outside. The glass should be at least ⅜" thick.

Centerboard and Rudder

It would be well to order the forgings for the centerboard and rudder some time ahead, as they will have to be made up specially. Of course, they are to be galvanized afterwards. Do not put a single piece of black iron into the boat, as it rusts quickly.

Figs. 16 and 17, with the construction plan, give full information as to the centerboard and rudder, both as to dimensions and manner of fastening. The enlarged details cover the hardware. In boring



DETAILS OF CENTERBOARD

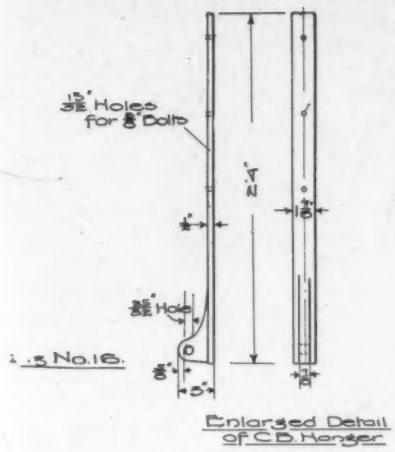


Fig No. 16.

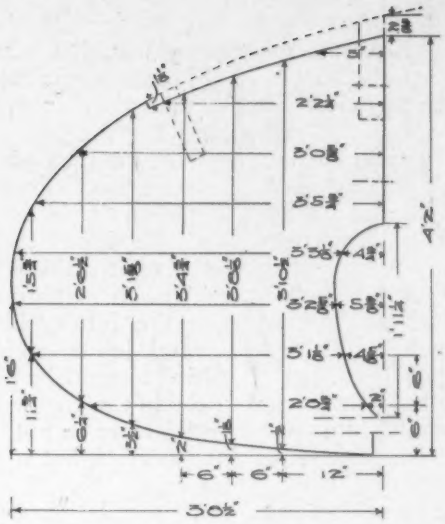
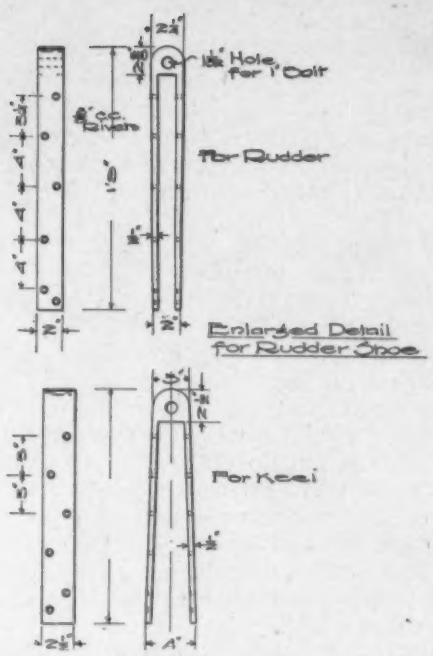


Fig No. 17.



for the drift bolts practically the same method is employed as for the shaft hole. At the same time you order the centerboard and rudder forgings you should order the stem band, the upper end of which is to have an eye to take the head-stay turnbuckle, and the lower end is to extend well below the water line. This is to be fastened in place with flat head countersunk screws. I have given no drawing for this fitting, as the best way to make a pattern is to tack up a piece of paper on the stem and cut to fit. The band should be ⅜" thick at the top, tapering down, and half oval in section. All these forgings should be of good wrought iron, Norway preferred. Don't use steel, as it is not as good for such fittings as iron.

Finishing Up

After the hull is caulked you will want to see how she shapes up. Sharpen up a light plane and go over the hull carefully. Much of the first planing can be done across the grain, giving a good round to the planks. If you can, turn the boat upside down for this work, as it is rather difficult to get a good job on the bottom otherwise. When the planing is done, the hull can be worked down with three or four grades of sandpaper, working with the grain. If you have any young friends who think they would like to help a little in order to insure a sail later on, invite them in for this sandpapering job. If they last out cheerfully, they are good material for sailors.

When the hull is smoothed up to the satisfaction of the owner and his advising staff, paint all the knots with orange shellac, otherwise they will show up through the white paint like lighthouses in a fog. Now give her a priming coat of a little white lead and lots of raw linseed oil. Then putty the seams, using a composition of white and red lead with enough whiting to stiffen it. A little varnish adds elasticity. Force the putty in well, being sure that the seams are entirely filled. Let the putty dry a day or so and then sandpaper the whole thoroughly.

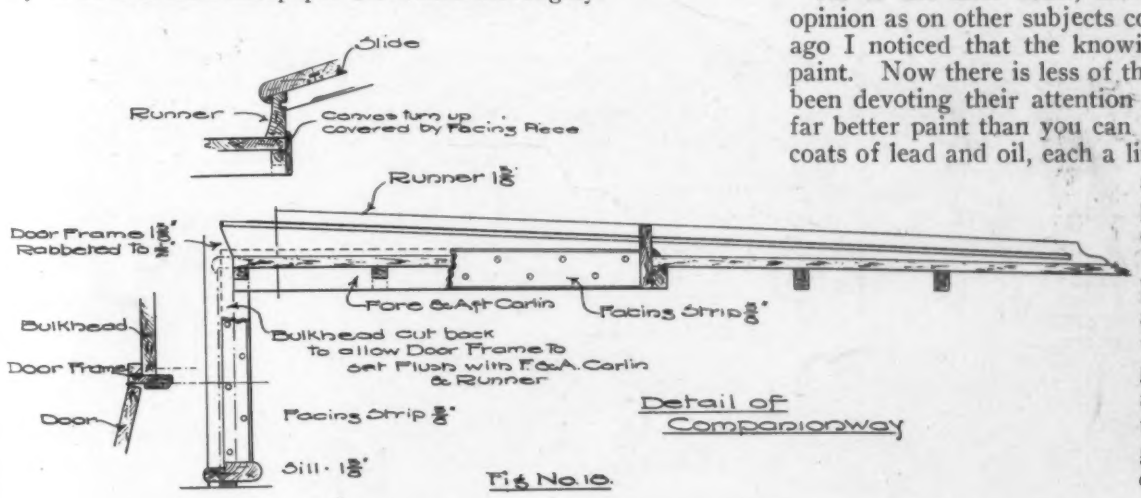


Fig No. 18.

Cutting the Water Line

Care should be taken with this, and a line established which may be preserved as long as the boat lasts.

You have the marks of the load water line on the stem and transom. Measure up, say, three inches above this for the painted water line. This is to bring the bottom paint up above the real water line to prevent the white fouling.

Now, take two straight edges and tack one up athwartships at each end, making them long enough to clear the extreme beam. Connect the ends of these with chalk lines. The straight edges should be leveled with the spirit level, and some little bracing will be necessary to keep them in that position. We now have a rectangle circumscribing the water-line plane. Secure a spirit level to another straight edge; put one end just under the chalk line and the other touching the hull. When the bubble is in the center have someone mark the hull where the end of the straight edge comes. Repeating this along both sides we get a series of marks which can be swept in with a light batten tacked to the hull, which will correct any slight errors there may be. In this way you should get a true line, which can be scribed in with the point of the compasses deep enough to last. In painting the water line, be sure to paint the top sides first with each coat and the bottom afterwards, otherwise the white is apt to run down into the other.

Painting

The second priming coat should be about the same as the first one, except for less oil and more lead and a little dryers. Do not use much turpentine until you can no longer see the grain of the wood, which should be after about the third coat, the idea being to let the wood absorb as much paint and oil as possible.

As to the later coats, there is about the same difference of opinion as on other subjects connected with the job. Some years ago I noticed that the knowing ones mixed their own top-side paint. Now there is less of this, as the paint manufacturers have been devoting their attention to marine paint, and you can buy far better paint than you can mix. So I advise that after three coats of lead and oil, each a little thicker than the preceding one, applying three coats of flat white, purchased ready mixed, and the last coat an enamel or semi-gloss paint. Between each coat rub down with light sandpaper and putty up holes and hollows. A good deal of this work will be lost when the boat gets in the water, as the swelling of a new boat always works out a little of the putty, so that the really good job of painting comes the second year.

There are many good bottom paints, as many as there are insurance agents. They range in price from $2.50 to $7.00 per gallon. Some of the latter will come guaranteed to stay clean all summer, and I rather lean toward them.

You will probably need only half a gallon for the job, so that the cost of the best will not be high. If you get a bottom paint which holds and stays free from fouling, the time and money saved through not having to haul out and repaint is well worth considering.

If you have made a good job of the deck, it is not a bad plan to varnish it for the first year or two. This gives a nice, dressy appearance, but you will soon get tired of keeping it bright, and can put on the paint any time. You can get very good deck paint in the market, but do not use anything but regularly prepared marine paint. The interior will look well if painted white with a little bright work here and there. The sheathing and under side of the deck and deck beams should be painted, anyway. This is done in about the same manner as the top sides, except that you can use the interior marine enamel for the last coat.

JOINERWORK

We will now take up the fancy work of the boat. If you can arrange to rig up a bench in the cellar and work on these jobs evenings, or when unable to go to the boat, a good deal of time can be saved, and you will probably turn out better work. If you leave it until the last you are apt to rush it. Moreover, you cannot do this work to advantage in the cold.

Such matters as staving up the cockpit and centerboard trunk, making the seats and transoms are probably better left to the ingenuity of the builder. If you have come through this far you will hardly fall down on such matters.

By far the most important part of this work is in the companionway and doors. These I have endeavored to make clear in Fig. 18. You will get an idea of the slide and general arrangement from the construction plan. By all means, make these of Mexican mahogany. It is nice wood to work, and weathers well. Oak is very liable to check when small pieces are exposed to the weather, and it will turn black if not protected by paint or varnish.

I think best not to dwell on the interior arrangement, as you may wish to alter it. In general, do not put in a bit more sheathing than is required for looks in the cabin. The boat is amply strong without it, and it only helps to hold the moisture. Where you do put it in, see that there are air spaces for ventilation.

The little galley can be curtained off and concealed from view when not in use. Either arrange the stove on a movable slide to pull out when lighted, or be sure to cover the under side of the beams with asbestos covered with zinc. You will note that the double companion gives the cook a chance to breathe while at work.

The ice box is a galvanized iron tank resting on its side with a little pocket at the bottom to hold the water. Have the drip lead out of the hull at the waterline. It can be led into the bilge, but this does not contribute to the sweetness of the boat.

The cockpit is intended to be self-baling, and has two scuppers at the after end. These are of 1¼" lead pipe, and can be very neatly and easily installed. In the cockpit floor bore a countersunk hole 1" greater in diameter than the outside of the pipe. This is only to take the flange, and need be only about 3/16" deep. Then bore for the pipe. Afterwards, through this hole, bore a very small hole through the planking to locate where the scupper is to come out. Now repeat the operation from the outside of the planking. Insert the lead pipe, flange it over top and bottom in white lead, and tack down with copper tacks.

It is not within the province of this article to deal at any length with such matters as the installation of the toilet, engine, etc. For the former hire a plumber, as the job involves "wiping" several joints, which is about as impossible to the amateur as lifting himself by his bootstraps.

As to the engine, much has been written advising the amateur, and I refer to authorities already on record. You can do it all by yourself, but it will open up a different line from the rest of the job.

Briefly, I may say that having the shaft hole bored a good deal of trouble is over. With a line through the center of the hole, secured to the centerboard ledge and to a stick tacked upon the outside, you can get the position and alignment of the engine bearers. Make the transverse beds, or floors, as long as possible, letting them run out to nothing on the deadrise. Fasten them with lag screws to the keel and with rivets to the frames. Let the bearers, or fore-and-aft beds, notch over the floors and fasten to them with lags.

Have the gasolene pipe a snug fit through the cockpit floor, so that any leak at the tank will run off on deck. Be sure to have a water and dirt separator in the gasolene line. In the exhaust line there should be no turn sharper than 45°, and the end should come out well up on the transom to avoid the possibility of sea water backing up in it. If you decide to admit the circulating water to the exhaust, see that the point of admission is below the cylinder head. If it is higher, and the engine stops suddenly, the cooling water is apt to run down hill into the cylinder. Be careful to keep the batteries in a dry place. Some engines are made nowadays to start direct on a magneto.

The engine shown in the drawing is a single-cylinder, two-cycle one rated at 4 horsepower. There are several makes resembling this and differing from each other only in details, and can be had for about $130, without tanks and piping.

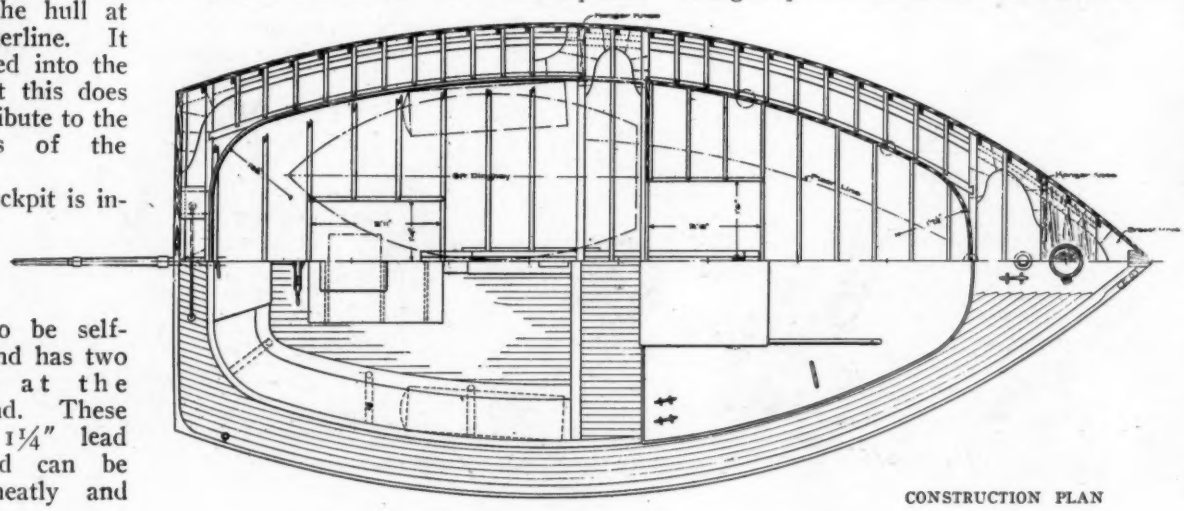
With a two-bladed propeller, 18" x 16", turning 450 to 500 revolutions per minute, you should get about 5½ miles per hour in calm water.

RIGGING

The first step is to get the spars. If you can afford it, let this work out to a regular spar-making concern. The spars can be made for about $35.00. They should be heart sticks, and if ordered outside will not take time from the other work.

If you decide to do them yourself, you can probably turn out a creditable job, but it will take time. First select three clean, straight spruce sticks, each to be a small tree, so that it will have a heart through it and no grain running directly across from side to side, as would be the case if gotten out of the quarter of a large trunk. It may be better to start with one of the smaller spars, as there will be smaller loss in case of spoiling it.

Get the bark off and flatten one side with an axe. Snap a chalk line along this side and use it as a



CONSTRUCTION PLAN

(*Cont. on page* 101)

SPEED DEMON II TUNING UP. SHE AND BABY RELIANCE V WERE THE STAR PERFORMERS OF THE REGATTA

SAYONARA (IN THE FOREGROUND) AND SHADOW TAKING ONE OF THE TURNS. SIGHT-SEEING FLEET LINED UP ALONG THE COURSE

The Miami Mid-Winter Regatta

By S. P. HOLMGREN

BISCAYNE BAY, Florida, was the scene of a series of exciting events in the power-boat regatta held there under the auspices of the Biscayne Yacht Club and the Miami Board of Trade, Friday and Saturday, January 15th and 16th. The event was the first race of 1915, and was a part of the annual carnival of the Knights of Dade, held at Miami during the week of January 11th to the 16th.

The regatta was the biggest ever held on Biscayne Bay, and it attracted thousands of spectators. There are a great many yachts in the South this winter, and a long line of them was anchored along the western side of the course, while hundreds of automobiles ran almost to the water's edge on Belle Island and Alton Beach to get a view of the racing.

Those who judged the races were Robert E. Power and Commodore Chas. W. Kotcher. Kirk Munroe handled the stop-watch, and his brother, F. M. Munroe, the gun. Bradford Burnham kept the records. The judges' stand was located off Belle Island, at the upper end of the bay.

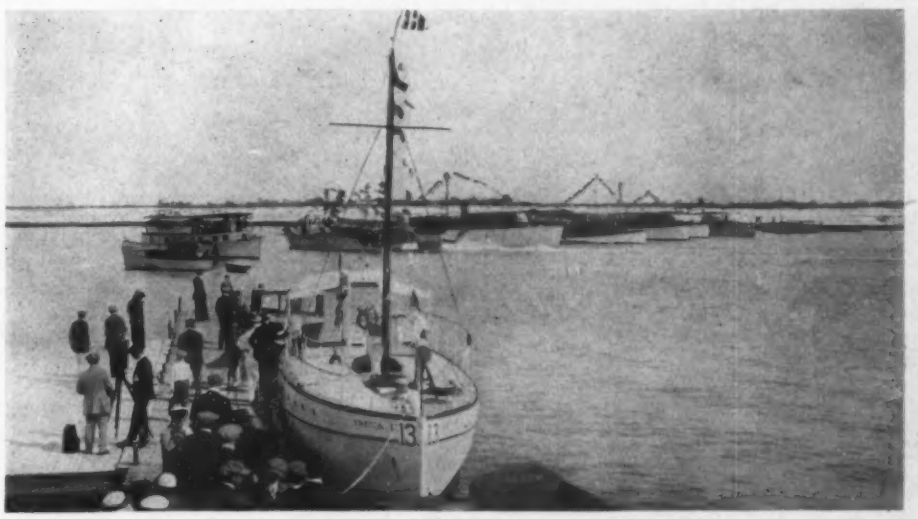
The course for Friday's racing was laid off Alton Beach, opposite Miami, on the easterly side of Biscayne Bay, which has recently been dredged by the Government. It was three miles in length, though on Saturday this was reduced to two and a half miles. Classes had been arranged to provide racing for every type of boat, from the smallest runabout up to the largest motor yacht. There were no handicaps, and the fastest boats in each race took the prizes—which added to the interest not only of the spectators, but of the contestants as well.

The first race, for open, displacement boats over twenty-five feet, started at 1.30 P. M., Friday, and brought out only two starters—Maris, owned by Geo. T. Lippincott, of Philadelphia, and Dorothy D., owned by C. P. Ryman, of Palm Beach, the distance being fifteen miles, or five times around the three-mile course. Maris proved to be the faster boat, taking the lead at the start and holding it throughout the race, winning by three minutes and forty seconds. The prizes for this event were: 1st, a $125 cup; 2d, $50 in merchandise.

The second race, for cabin cruisers over forty feet, brought four boats to the line—Sayonara, owned by James Deering, of Miami; Shadow, a new Speedway boat, owned by Carl G. Fisher, of Indianapolis; Barota, James K. Clark, of Palm Beach, and Freva II, owned by H. B. Haberman, of Miami. The distance was fifteen miles, the prizes being: 1st, a $200 cup; 2d, $75 in merchandise. Sayonara crossed the line first and held the lead until the third round, when she was passed by Shadow. The latter, while not as fast as Sayonara, being shorter, made the turns quicker. Sayonara, however, more than made up for her slow-turning on the straight stretches, and regained the lead, crossing the line 15 seconds ahead of Shadow. Neither Barota nor Freva II finished, and Shadow was disqualified for cutting inside one of the marks. The winner's time for the fifteen miles was 43 minutes and 20 seconds.

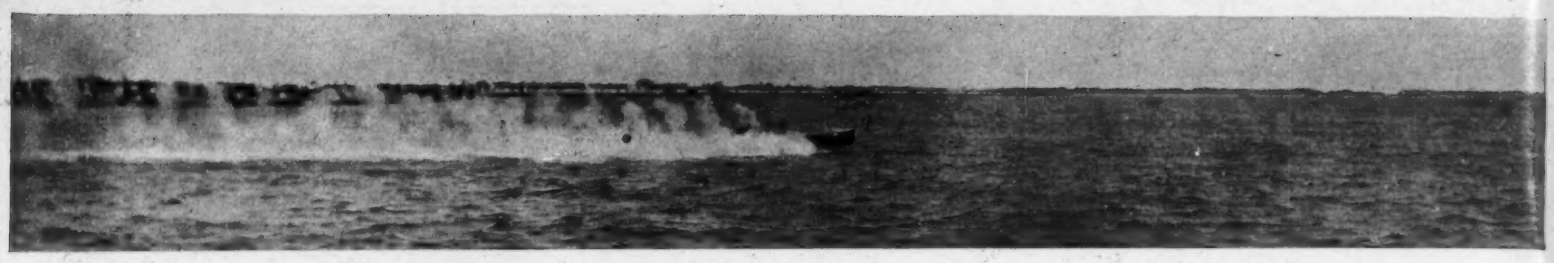
The final race, on Friday, and the one which furnished the best racing of the day, was the one for hydroplanes. Seven boats were entered for this event, but only three started. The race was for thirty miles, or ten times around the three-mile course, the prizes being a $300 cup for first, and $100 in merchandise for second. The boats that started in this event were Baby Reliance V, owned by Commodore J. Stuart Blackton, of New York; Baby Speed Demon, by Mrs. J. Stuart Blackton, and Miami, by Carl G. Fisher. The two former were the same boats that captured all the big events last summer and smashed so many records and were powered with the same 180-H. P. Sterling engines that were in them during their summer's campaign.

Baby Reliance shot over the line first and held the lead for the first three laps, Baby Speed Demon following closely, Miami being gradually left behind. In the fourth lap, Speed Demon drew up on Baby Reliance and passed her, holding the lead for four laps, when Baby Reliance again shot to the front, but kept the lead only for one lap, as Speed Demon again passed her in the ninth, and kept her nose in front until the finish, beating Reliance by three seconds and Miami by 9 minutes and 34 seconds. The time for the 30 miles was: Baby Speed Demon, 39:51; Baby Reliance, 39:54, and Miami, 49:25.



FREVA II ALONGSIDE THE DOCK AT BELLE ISLAND

It should be said that Miami had been dropped out of the derrick slings while she was being unloaded from the steamer at Key West, and had her propellers smashed and her struts



BABY RELIANCE V HITTING UP THE PACE

broken and bent, so that she was not running at her best, and did not show the speed of which she was capable.

Saturday's Racing

Conditions for racing on Saturday were not as favorable as on Friday, a fifteen-mile breeze and a choppy sea making rather rough going for the hydroplanes.

The first race of the morning was for open, displacement power boats 25 feet and under, twice around the two-and-a-half-mile course, making the distance five miles. The prizes were: 1st, a $100 cup, and 2d, $25 cash or merchandise.

Two boats appeared for this event—the Newton, owned by J. M. Lummis, of Miami, and Rosalie, owned by Howard Backus, also of Miami.

From the start it looked like a hare-and-tortoise affair, as Newton ran away from Rosalie and finished the race ten minutes and twenty seconds ahead of the latter.

MIAMI PLAYED IN HARD LUCK

Next came the race for cabin cruisers 40 feet and under. Three boats appeared for this event—Marian, owned by Mr. James Deering, of Miami; Zalene, Mr. Carl G. Fisher, of Indianapolis, and Evelyn, owned by Mr. C. G. McCutcheon, of Jackson, Mich. All three of these boats were built from the same plans and equipped with the same power, 30-45-H. P. Speedway motors, their over-all length being 30 feet; beam, 7½ feet, and draft, 2 feet 9 inches. Their plans appeared in the January issue of Yachting.

Evelyn crossed the line first, with Marian and Zalene close behind. Marian worked her way into the lead before finishing the first lap, Zalene following and Evelyn last—the starting order being just reversed. Marian continued to increase her lead, and crossed the line the winner. The finish between Zalene and Evelyn was very close, and coming down the home-stretch neither boat appeared to have the advantage, but at the last turn of the race Evelyn poked her nose ahead and won second place by three seconds. The time for the 7½ miles was: Marian, 35:20; Evelyn, 37:02; Zalene, 37:05.

The first event of the afternoon was for open, displacement power boats, any length, the distance being three times around, or seven and a half miles. Four boats appeared for this race—Newton, owned by J. N. Lummis, of Miami; Maris, by George T. Lippincott, Philadelphia; Dorothy, owned by Dr. Van Dyke, Miami, and Rosalie, owned by Howard Backus, Miami.

The race was really between Maris and Newton, as Dorothy dropped out after passing the first mark, due to engine trouble, and Rosalie was clearly not in the same class with the other two.

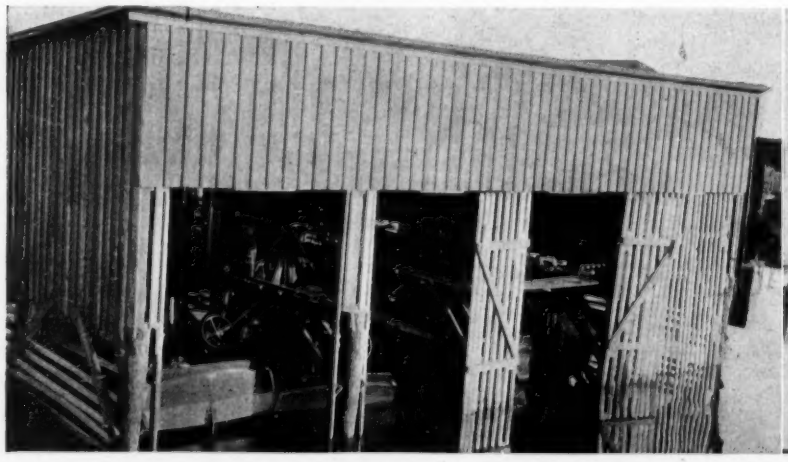
Maris finished the first lap two minutes and nine seconds ahead of Newton; at the close of the second lap the former had increased this lead materially, and in the last round added a bit more, just to show what she could do, finishing four minutes and twenty-six seconds ahead of Newton, the elapsed time of the winner being twenty-two minutes and thirty-two seconds. Rosalie finished the race twenty-eight minutes and thirty-six seconds after the winner..

Cabin cruisers of any length were the next to race, three motor yachts taking part: Sayonara, owned by James Deering, of Miami; Shadow, by Carl G. Fisher, and the Barota, by James K. Clark, of Palm Beach. The distance was four times around, or ten miles, the prizes being: 1st, a $300 cup; 2d, $100 in merchandise; 3d, $50 in merchandise.

As in the previous day's racing, Sayonara made her gains on the straightaway stretches, and Shadow had the advantage at the turns. The distance between these two boats was not great at any time, and, coming down the homestretch toward the judges' stand, they presented a sight which any true sportsman would have gone miles to see.

Sayonara took the lead in the first lap, and finished it nineteen seconds ahead of Shadow, Barota being third. On the second round Sayonara still held the lead by 18 seconds over Shadow, and Barota trailed along behind. On the next lap Sayonara and Shadow finished only fifteen seconds apart, Shadow having gained

(*Continued on page* 101)



STALLS FOR THE CARE OF THE RACING BOATS. MIAMI PROVIDES EXCELLENT FACILITIES FOR THE BOAT OWNER

A GROUP OF ENTHUSIASTS. LEFT TO RIGHT: COMMODORE GREENING, "CHRIS" SMITH, R. E. EDGREN AND COMMODORE BLACKTON

Why Not Standardize the Universal Rule?

By CHARLES SCATES

A Plea from the Secretary of the Lake Michigan Yachting Association for the much needed standardization and clarification of the racing rules of the various Associations

Recent numbers of the two leading yachting publications of this country contained editorial comments upon the decision of a regatta committee at Sandusky, Ohio, with reference to the use of the spinnaker boom in a race in which one of the yachts carried the inboard end of this boom upon the stem head instead of on the mast, and had the other end of it projecting beyond the bowsprit (to which it was lashed), while the other had the boom on the mast with the end reaching beyond the forestay. The latter boat had protested the former for using the boom improperly. The regatta committee first decided that neither boat had violated any rule in using the boom as indicated, but that both boats had increased their sail area, and must be remeasured and a new rating given them.

One of the magazines in reviewing this decision, said that the committee was all wrong; that both boats had violated the rule against the use of the spinnaker boom. It then proceeded to lay down the rules which it said had been violated. The other publication, YACHTING, said, in substance, that neither boat had violated any rule against the use of the boom, because in the Yacht Racing Union rules under which the race was sailed there is no restriction in that respect.

This radical difference of opinion on the part of the two American authorities in yachting affords a surprising illustration of the fact that we have not yet reached that uniformity either in the language or in the interpretation of the racing rules that the adoption of the Universal Rules was intended to give yacht racing; and it affords me an opportunity to call attention to an important omission in the Universal Rules.

My experience has been that the average yachtsman, unless he has had considerable education as a judge or a regatta committee man, has a rather superficial and careless knowledge of the rules, and carries from year to year many wrong second-hand impressions gathered from others equally as careless as himself.

One of the most common errors is in regard to the use of the spinnaker boom, and to some extent of the spinnaker itself. Probably if ten yachtsmen to-day were asked to give their ideas of the present rules as to the use of the spinnaker, nine of them would say:

1. That the pole must be carried on the mast when in use.
2. That it must not be lashed at any point forward of the mast.
3. That it must not touch the forestay.
4. That the clew of the sail may be carried outside of the forestay and sheeted aft.

A small number would maintain that the spinnaker must be carried inside of the forestay and lee shrouds. And a still smaller number would insist that the pole must not be lashed, even on the mast.

I think it may surprise many yachtsmen to learn that the present Universal Racing Rules, under which practically all racing in the United States is *supposed* to be conducted, are silent upon all of the above propositions; that there is not a single word of restriction as to the use of the spinnaker boom, or the spinnaker itself.

The length of the boom and the shape of the spinnaker are restricted, but nothing else.

The magazine just quoted (*Rudder*), in commenting on the decision, says:

"The spinnaker is a running sail and cannot while attached to its pole be used as a reaching sail."

I have been unable to find any such rule in any yacht book I have ever seen, and I know of no rule from which such an inference can be drawn. It says further:

"It (the pole) can be guyed forward so long as the pole does not rest against or be lashed to the forestay or bowsprit without breaking the rule."

Years ago a restriction could be found occasionally in a club book against lashing the pole forward of the mast, and it is in force at present among the yacht clubs of the Inland Lake Yachting Association, but it is rarely found now, and it is not in the Universal Rules.

The comment proceeds further:

"The tack (undoubtedly the clew was meant) must not be carried around the forestay and be used on the leeside as a sheet."

There is no such restriction in the Universal Rules. There has been at times in the past such a rule among some of the smaller classes, and the Long Island Sound Association at one time interpolated into the Universal Rules a clause prohibiting the spinnaker sheet from being carried forward of the headstay and outside of the lee shrouds, which applied only to the 31-foot and smaller regular classes; but the Massachusetts Bay, the Yacht Racing Union, the New York Yacht Club and the Gravesend Bay Association have not made this change. The Sound Association dropped the rule a year or so ago, and it is found now only in some of the smaller restricted classes.

The editorial comment concludes as follows: "In the old days when there was no restriction on the pole this was frequently done; also lifting the pole out of the goose-neck and setting the heel on the rail."

Some of the smaller classes at one time had a clause penalizing a boat which carried the boom on the shroud by adding the distance between the mast and the shroud to the measurement of the fore triangle; indicating that those yachtsmen had formerly considered it proper to carry the pole anywhere desired, but had finally determined to penalize the practice.

It seems pretty clear, therefore, that one of the rules contended for in the editorial never existed, one is obsolete, one is exceptional, and that not one of them is in the so-called Universal Racing Rules.

The Sandusky committee later, presumably influenced by the foregoing criticism, changed its decision and ruled that both rigs were foul and disqualified both boats.

In reviewing its contemporary's criticism, YACHTING, in its December number, disagrees with the first decision of the Sandusky committee and the editorial comment upon it, contending that the boats need not be remeasured, necessarily, because the sail area had not been increased; and that neither boat had violated any rules of the Yacht Racing Union, under which the race was sailed, because the Union has no rule in respect to the use of the spinnaker boom; that in this respect the Union Rules differ from the Universal Rules, and that it is unable to state whether the omission was intended or accidental.

The fact is, I think, that the Union and Universal rules are alike on this last point—*i. e.*, silent. I think YACHTING's ruling here is due perhaps to its consulting the Long Island Sound or the Narragansett Bay book, or perhaps the restriction of one of the smaller classes and finding the rule there.

I, also, take issue with the Sandusky committee, not because the first decision was not equally fair to both sides, but on account of the reasons given for that decision, which were, in substance, "That a yacht which changes her sail area must be remeasured and penalized."

It is apparent, of course, that the area of the spinnaker was not increased at all. It was the same sail. It was merely used in a different position and at a different angle—further forward—against which there is no restriction in the present Universal Rules.

To heel the boom on the jib traveler, bitts or bowsprit and trim the sheet aft on the leeside would not increase the sail area any more than to heel the boom on the mast at right angles to the boat, snap the tack on the end of the boom, and pass the clew around the forestay and sheet it. In both cases all of the area of the spinnaker would probably be used.

It may surprise some, also, to learn that although in probably every race held under Universal Rules to-day large and small balloons and reaching jibs are carried, they are not named among the sails permitted.

Rule V particularizes as to what sails may be carried in racing, and then generalizes as follows: "A yacht may set light sails over or in place of working sails."

Now what are light sails? Neither the Standard Dictionary nor Dixon Kemp gives any such term. A jib topsail, a main-topmast-staysail, a lug foresail, a mizzen staysail, a square topsail, a raffee, a sprit topsail and a spinnaker are permitted by the rule, and therefore are not included in the phrase "light sails," because the term was intended to cover additional sails that might be used. Does it include a balloon jib, a balloon jib topsail, a balloon main-topmast-staysail, a balloon forestaysail, a reaching jib, and a main staysail? Those are all lighter than the regular working sails, and yet we hardly think the average yachtsman will maintain that the term "light sails" will permit the use of *all* those.

I suggest that the rule is indefinite and may cause unending discussion. Why not name the light sails specifically, or, if it is the intention to restrict them to headsails, call them flying headsails, which is a pretty definite term with most yachtsmen?

To sum up: The Universal Rules say nothing about how, when or where the spinnaker pole, the spinnaker, the balloon or reaching jib shall be used; nothing about the size of any of the flying headsails, or the shape, except that the spinnaker shall be triangular. They restrict the length of the fore triangle, and thereby limit the area of the working headsails. They limit the length of the pole, but that does not in any way affect the area of the flying headsails.

The rules of the New York Yacht Club, the Massachusetts Bay and Gravesend Bay Associations and the Yacht Racing Union are uniform with the Universal on these points. The rules of the Long Island Sound and the Narragansett Bay Associations differ from the Universal Rules only in that they limit the hoist of the spinnaker, forbid it extending beyond the outer end of the boom, and require the boom to be carried on the mast when in use.

What was the purpose of the rule specifying the length of the spinnaker pole? Clearly to limit the size of the spinnaker. That it fails to do this is evidenced by the fact that nearly all spinnakers on the foot exceed the length of the pole, as well as the base of the fore triangle, by from 50 to 100 per cent. The only thing the restriction accomplishes is to prevent the tack of the spinnaker from extending beyond the outboard end of the pole. I am speaking generally now because there is not even that restriction in the Universal Rules, nor is there any as to the hoist of the spinnaker, except inferentially.

The area of the working headsails is limited and determined by the area of the fore triangle, and must not exceed that. That rule is adhered to by all clubs and it accomplishes its purpose.

The flying headsails, viz.: the spinnaker, balloon and reaching jib are intended to be used in place of the working headsails when the weather

(*Continued on page 86*)

The Motor Boat Show. No one would guess, from the number and scope of the exhibits at the Eleventh Annual Motor Boat Show in Madison Square Garden and the advance interest manifested in them, that the country had been through a period of unsettled business conditions. Far from that being the case, there is every indication that the coming season in 1915 is going to be a particularly active one on the water and that all of those identified with the sport in a commercial way will benefit accordingly. It is true that up to the first of the year there had not been much building of new boats started, but since then a number of orders have been placed and many more are expected to be closed at the Garden. It now seems certain that business conditions will not in any way necessitate a curtailment in the activities. The fact that Europe will be closed to the thousands of Americans who annually spend their summers and their money abroad will undoubtedly see many Americans become boat owners and turn to the water for pleasure, and, barring the fact that there will probably be no international races, this season will probably see more boats afloat and more local activities than in many years.

More Governmental Control Agitation. In a recent report of the Department of Commerce, its Secretary, Mr. W. C. Redfield, has made it very evident that he believes that some kind of Government control of the motor-boat situation is necessary. The Secretary draws attention to the fact that the Department has no power over motor vessels operated for pleasure, or even over those under 15 tons carrying passengers for hire. He says:

"If a Government inspector stood upon a dock watching a motor boat sailing away with three times as many passengers as she ought to have, her machinery defective and her hull leaking, he would have no power in the premises, were she a motor boat under 15 tons measurement, except to see that there was a life preserver in good order provided for every passenger on board, and that she had the proper lights and means of extinguishing gasolene fires; with a whistle and bell of standard dimensions. He could, indeed, require such a vessel to have a licensed operator, but for that license no examination is required. A person may obtain a license as operator of motor vessels without being a citizen of the United States or without being 21 years of age, and while unable to read or write, without any examination whatever. * * * The reckless navigation of an uninspected motor vessel jeopardizes the lives of passengers on other vessels as well as those on the boat itself."

There is undoubtedly a great deal in what the Secretary says, but it is by such movements as the U. S. Power Squadron and the work it is doing to bring about a higher standard of proficiency among power-boat owners and skippers that such conditions can best be mitigated. The Government has not the machinery at present to enforce any law that might be passed along these lines; but the desire for such control is apparent, and it behooves boat owners themselves to eliminate the conditions complained of and boost the work of such organizations as the Power Squadron.

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conditions would not permit the advantageous use of the latter. And yet the area of the flying sails are not restricted in any way whatsoever in the Universal Rules. It may occur that in a cruising race of, say, 100 miles, with a following wind, a boat may use throughout the race flying headsails that it has not been measured for, that are double the area of the fore triangle for which it has been measured; and the same thing may occur to a less extent in triangular or windward and leeward races.

There are at least two good reasons for restricting the length of the spinnaker boom. One is a matter of safety and convenience in handling, and the other is to limit the size of the flying sails that may be used upon it—which can be done only by a properly worded rule.

I believe that it would be better to restrict the length of the boom on the smaller boats, because a long, unweildy boom is not only difficult for a small crew to handle but at times may become dangerous. For that reason, also, I think its heel should be kept on the mast, but the pole should be allowed to swing at any angle and be lashed as desired, and the flying sails should be used in any way that ingenuity may devise. I have never heard any good reason why the pole should not touch the forestay, if desired. A yachtsman must have much practice and experience in many races to know how to keep one flying headsail flowing into another properly, especially in shifting wind. It is one of the tricks, or one of the fine arts, to use a better phrase, in racing. There should be no restriction upon the education of the young sailor in such an art as that.

Now, in view of all these varying interpretations based upon these conflicting rules, wouldn't it be well for the Atlantic Coast Conference to take the matter up and attempt to agree upon some simple, plain and unequivocal rules as to the use of the spinnaker pole, the flying headsails that may be carried unless otherwise provided for in special classes and their size and shape?

I suggest the following, or similar rules, to do away with all uncertainty in regard to the flying headsails: The spinnaker boom may be swung at any angle desired, but its inner end must be carried upon the mast when in use. All flying headsails shall be triangular in shape, shall not extend above the highest halyard block used for headsails, or beyond the outer end of the spinnaker boom, and none of them shall on the foot exceed the length of the boom by more than 50 per cent.

I would not, in the interest of good racing, limit them or their use in any other way whatsoever. Why shouldn't a boom be lashed at any point that is deemed necessary? It makes for the safety, at times, not only of the sail and spar, but of the sailor as well. I have in mind a bridle on the boom to which is snapped a line running straight down through a block on the deck a little forward of the mast and leading back to the cockpit, where it can be eased up or trimmed at will. It is my own invention, and has given me and my crew many an easy hour in a big wind and sea when cruising, and it affords additional support to the boom that might otherwise be snapped in a jump of a sea.

Some of the clubs on Lake Michigan have had protests lately where a spinnaker or boom was trimmed or carried in a manner supposed to be unorthodox by the average judge. The judges invariably disqualified the victim, either assuming that a restriction was in the rules, or, when their attention was called to the fact that it was not there, adopting it as unwritten law and stating that it should be there. They all, at one time or another, had seen some such restriction in some book, and assumed, as did the yachting publication referred to, that it must be there somewhere.

There is something really ludicrous about this whole Sandusky situation that might well bring a laugh and a jest from a cornfield sailor.

The three yacht club judges found in substance: First, that the manner of carrying the boom violated no rule; second, that it did violate a rule by increasing the area of the fore triangle and thereby the sail area and that both boats must be remeasured and penalized.

This seems rather amusing, inasmuch as it was the spinnaker that was in question, and the area of that sail was not increased in the first place and in the second place it is only the working headsails and not the flying sails that are taken into account in the measurement of a fore triangle and the rating of the boat.

Then this decision was criticised sharply by one of the authorities on yachting, who said that both boats had violated certain rules which he proceeded to specify, and which, in fact, don't exist at all in the rule under which the race was sailed.

Another equally prominent authority on yachting, in reviewing both the above, said that neither yacht had violated the letter of the rule, but that one yacht had violated the spirit and should be remeasured.

The third critic says that all three are wrong or mistaken in whole or in part.

NOTE:—It should be pointed out that so far as we know there are no printed copies of the so-called "Universal" rule which Mr. Scates mentions. The Atlantic Coast Conference which formulated the present measurement rule was not an organized body, but merely advisory. When it met and listened to the proposed changes in the rules, which were in pamphlet form, the delegates adopted them for the various sub-organizations, and the only place where the rules are definitely printed is in the books of these sub-organizations, with such changes as the local conditions made necessary. We believe that the rule relating to *measurement* was adopted practically without change, though the racing rules were changed considerably by the various organizations, as Mr. Scates points out. The rule we quoted that "the spinnaker boom must be carried on the mast when in use" is from the Yacht Racing Association of Long Island Sound.

The fourth annual reception and dance, which was held at Germania Hall on January 15, was a very "swagger" affair, and brought out a large attendance of members of the club and their guests. Everybody had a good time judging from the number of collars that wilted—from the leader of the 69th Regiment Orchestra down to the hat-boy in the coat room. The hall was very tastefully decorated, due, we understand, to the efforts of our treasurer, Capt. Lloyd, the band being seated on the bow of the power yacht Hoodle-Doodle, that reminded everyone of Bullock's Alura.

The first inter-club trap shooting match was held at Harrison Island on January 6, and the New Rochelle Yacht Club carried off the honors, though they just managed to pull through with a narrow margin of two targets. The final score was New Rochelle Yacht Club, 445 out of 500 "birds"; Marine and Field Club, 443; Bayside Yacht Club, 431; Manhasset Bay Yacht Club, 418; Bensonhurst Yacht Club, 385. The shooters on the winning team and their scores were: Martin, 93; Offutt, 91; Howard, 91; Granbery, 88, and Hatch, 82. The prize for the high scratch gunner that day went to John H. Hendrickson of the Marine and Field Club.

The next inter-club match will be at the Bayside Yacht Club, and as one of our high guns, Offutt, will not be with us on that occasion the team will have to "go some" to repeat their win.

Hereafter, in addition to a high scratch trophy for each shooting day, the club will give a high handicap medal. The winner of this will be the man with the highest gross score. That is, if his breaks, plus his handicap, exceed 100, the total will be counted so that the man with 102 gross would beat the man with 101 gross, thus avoiding shooting off.

The Accumulation Cup will not be decided until January 31, and at this writing it is almost anyone's "pot," seven men having a look-in. Don't forget that it only costs 3½ cents a shot for both targets and ammunition, and those members that haven't already come out and seen what Harrison Island looks like on a pleasant Sunday should do so by all means.

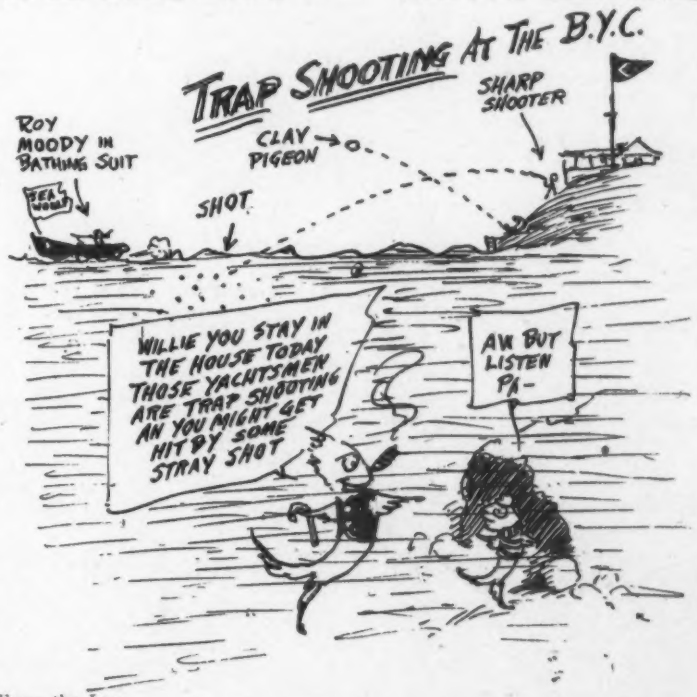
The dates of the inter-club team shoots are as follows:

Saturday, February 27, Bayside Yacht Club, 11:30 A. M.

Saturday, March 20, Marine and Field Club, 2 P. M.

The date for the annual dinner and meeting is Saturday, February 6, and the meeting place will be the Hotel Manhattan as heretofore. It is hoped that all of the members will come out and make a record-breaking dinner. Remember that the officers for the coming year are to be elected at this meeting, reports of committees for the past year read, and other interesting matter to be brought before the club members. Even at the price of missing the last train to New Rochelle you had better come out.

The entertainment committee promises a first-class dinner, with something doing every minute, but they are not giving out in advance much about their plans.


TRAP SHOOTING AT THE B.Y.C.
SHARP SHOOTER
CLAY PIGEON
ROY MOODY IN BATHING SUIT
SHOT
WILLIE YOU STAY IN THE HOUSE TODAY THOSE YACHTSMEN ARE TRAP SHOOTING AN YOU MIGHT GET HIT BY SOME STRAY SHOT
AW BUT LISTEN PA-

From the Log

It is by reason of their consistent practice that the Bayside Yacht Club did so well in the Inter-Club Team Shoot

Vice-Commodore H. H. Moulton sold his auxiliary yawl Mahdeena late in the fall. It is pleasant to chronicle, however, that this fine looking little packet won't go out of the club, as she has been bought by W. R. Laidlaw.

One pleasure boat still remains in the harbor. It is the little sloop Snug, built by "Larry" Huntington and owned by Henry Robinson. All of the other boats are safely hauled out and covered up, either at Harrison Island or at various points along the Sound.

The New Rochelle Yacht Club has always been known as one of the foremost racing clubs on Long Island Sound, if not of the whole Atlantic coast, and its regattas have been second in size only to those of the Larchmont Yacht Club, which has devoted a great deal of energy and money to promoting their events. Next year it is believed that, owing to the condition of some of the other clubs, there will be an excellent chance of making our regattas even more important than they have been in the past and of attracting still larger fleets.

Portland Yacht Club News

The new year was ushered in with a reception to the flag officers by the members of the club. Nearly one hundred and fifty attended the reception. Music and vaudeville helped pass away the evening. An excellent (and plentiful) buffet lunch was served by the entertainment committee.

January 12 the Power Squadron and guests enjoyed a smoke talk.

January 13, annual meeting. This meeting was largely attended. Several new members were admitted to the club. The reports of the officers and committees were read and accepted. The club is in excellent shape, owning its building, every bill paid, with a substantial balance in the treasury. There are now 433 members, and the prospects for a membership of 500 this year are bright indeed. Let everybody work for that end!

The election of officers resulted as follows:

Commodore—R. K. Dyer.
Vice-Commodore—V. F. West.
Rear-Commodore—H. F. Day.
Secretary—F. W. Wardwell.
Treasurer—W. A. T. Hunt.
Measurer—J. T. Davidson.
Trustees—William Senter, W. W. Goold, Charles F. Flag.
House Committee (for three years)—H. D. Loring.
Regatta Committee—V. F. West, F. F. Driscoll, E. G. Wilson, A. N. Smith, P. A. Mills.

The commodore made the following appointments:

For Commander of the Portland Yacht Club Power Squadron—H. F. Day.
Fleet Captain—George C. Orr.
Fleet Surgeon—Dr. C. W. Bray.
Membership Committee—C. W. Legrow, P. S. Ackerman, F. W. Rugg.
Entertainment Committee—F. W.

Wardwell, G. C. Orr, W. A. T. Hunt, R. C. Parker, A. W. Foss, E. W. Kilbourne, E. J. Huelin, P. A. Mills, J. C. Estes, H. W. Way, A. M. Murray, F. D. Wish

The entertainment committee, which has been trying to create a fund to make alterations in the social rooms and kitchen, report they have over half the amount needed. Responses are coming in every day swelling the amount already on hand. Repairs will be started in the near future.

January 16. A Little Dinner with turkey, cranberry sauce and all the fixings. All the good things served are prepared by the club's chef. No restaurant grub for ours. This was one of the best parties of the winter, and as a result seven applications for membership hang on the bulletin board for consideration at the next meeting.

January 20. The Power Squadron held another get-together meeting. There was a large attendance. Part of the evening was devoted to evolutions of the fleet, it being accomplished by toy models of boats, each man moving his model at the flag signal displayed by the commanding officer. These little winter drills are becoming popular, and it is making power men not only familiar with signals but when the yachting season begins they will be quick to put in practice this knowledge.

The Portland Yacht Club Power Squadron has been awarded a bronze medal by Commander Roger Upton, of the United States Power Squadron, for interest and attendance at the annual inspection last September. Here's hoping that next year they get the gold one!

The secretary is working on the Year Book for 1915. It will probably be issued in April.

The secretary wishes boat owners would send to him at his office, 11 Exchange Street, photographs of their crafts. They will be framed and hung in the club house with the now good collection.

Harlem Yacht Club Happenings

The winter dance and dinner of the Harlem Yacht Club, which will occur on Lincoln's Birthday Eve, February 11, at the Hotel Astor, promises to be a success far exceeding even the hopes of the most optimistic. So great has been the demand for tickets that some of the members are of the opinion that a limit should be set as to the number sold. According to the figures of the entertainment committee submitted early in January, more tickets had been sold at the time than has ever been the case in any affair held under the auspices of the club. Since that time the sale has been increasing steadily. Members who have not yet made reservations for tables, or who wish additional tickets, should obtain them at once by communicating with George Thomas, Harlem Yacht Club, City Island.

A surprisingly fine menu has been provided for the dinner. This will be a seated affair, with tables of six and eight covers. Arrangements can be made for reserving tables at no extra charge. The music will be of the best; dancing to begin about 9 o'clock; the supper will be served about midnight. Tickets are $3.50 per person, which covers all charges. Refreshments of a lighter calibre will be served in the ballroom, but a hospitable welcome awaits those requiring stronger nourishment in the café on the main floor.

The annual meeting and election of officers was held Wednesday evening, January 6. Despite the subway tieup and other traffic confusion of that night it was the best-attended club meeting in years. Many members present had not put in an appearance at a meeting in ten years, some not in fifteen. The election of flag officers was the principal business of the evening. Reports of officers for the past year were read. The officers elected for the ensuing year are as follows:

Commodore—Harold Kraussmann.
Vice-Commodore—F. E. Fredericks.
Rear-Commodore—Dudley Van Holland.
Treasurer—John F. Jarchow.
Financial Secretary—George Acker, Jr.
Recording Secretary—Edw. Schmidt.
Measurer—John Wimmer.
Fleet Surgeon—Dr. T. A. Martin.
Trustees (for two years)—Fred D. Newton, George Jarchow, Carl Seiferth.

Better service to and from City Island is promised for next season. The trolley line from the station has facilitated matters considerably, and it is announced that by next summer the line will be in a position to handle the traffic even better than it did last year. The trouble in getting to City Island has long been a drawback to the club, but most of the old obstacles have gradually been removed, so that it is now possible to make the trip in creditable time.

The club house continues to draw a good attendance on Sundays. Members more than ever seem to appreciate the comforts of winter quarters, not to mention a friendly chat, refreshments and the diversion of "Kelly" and cards. The restaurant is open all winter. Many of the members motor up from the city, have dinner, and after a few hours in congenial company speed citywards again.

Recent gales have swept City Island, with more or less damage resulting. A yawl and sloop were driven up on the east shore of the island, both being badly pounded. No damage, however, was done to the club fleet, which had been hauled out some time before and safely propped up in cradles. The yard back of the club house is packed tight with boats shrouded in their winter canvas. So large a number of craft have been accommodated this year that it would require a mathematician of high order, or a most strenuous Subway guard, to find room for even a modest dinghy.

It is with regret that the members learned of the serious accident to Vion Newton, son of ex-Commodore Fred D. Newton. However, he has now almost recovered, and will be about again in a week or two.

Ex-Commodore John A. Crowley has purchased an automobile, and "drew" up to the club house last Sunday in a manner calmly professional. It is a handsome seven-passenger Buick "six."

About the first of next month motor-boat owners will begin to "overhaul the injin," which is another way of saying that Frank Fitch, the *de luxe* "injin" surgeon, will be called upon to diagnose carburetors and other vital organs of the motor body. Frank, who is always called upon as a referee in motor arguments, has an invariable rule for all referees: "Be as unfair as you can to each one; get them all cussin' you, and six weeks later they'll be sayin', 'Gimme Fitch if anything's wrong with my injin; Fitch, he knows all about every injin!'"

"Joe" Lyons and "Rudy" Weiscker have gone on the stage again. "Joe" says it's lonesome off the boards, so they purchased George Thomas' animal act, the Marine Merinos, and are off on the big time circuit. It is a very refined vaudeville act, but "Joe" says it's making him gray trying to keep the water in the tank from freezing this kind of weather so that the Marine Merinos can have their daily practice. "Joe" wanted a Southern booking; but "Rudy" couldn't see it that way—says the South's gone dry now, anyway.

The movement to institute a series of Bay races, open only to club members, to be held on Sunday afternoons, on alternate weeks, which is backed by all the members interested in a revival of racing, may become a certainty if Commodore Kraussmann and the regatta committee lend their support. As we pointed out in a previous issue, two classes or divisions could be formed, which would permit the participation of all the yachts, large and small, on a handicap basis which would, in a large degree, insure equality of competition. The fact of holding these races on Sunday afternoon instead of Saturday would simplify the difficulty of avoiding conflict with the dates of other regattas, and would also permit the week-end cruisers an opportunity to take part. There is no reason, if these conditions are realized and met, why at least seventy-five boats should not be found at the starting line.

We have it on good authority that District Attorney "Tom" Press has enlisted a new crew for the coming season, and that his Mahaska will contend for the championship of the Manhasset Bay "twenties," and will also take active part in the Bay races. Not only do we welcome this reawakening of racing spirit in the District Attorney, but we look forward with zest to the legal solution of several technical racing problems.

The committee in charge of theatricals has practically decided upon the next performance, which will take place sometime in March. An earlier date was desired, but a postponement became necessary in order to insure the active attendance of our "professional members." As usual a light comedy has been selected, entitled the "Shellback," written by George Acker. Except for the selection of Mr. Bill Rice, City Island's oldest inhabitant, as the shell, no other designations have been made.

All Quiet at the Chicago Yacht Club

The mid-winter sloth has settled over most Lake Michigan yachtsmen, and outside of the "regulars" who drop in at the Chicago Yacht Club winter quarters for a game of auction or "Kelly," there is not much activity in evidence.

Every Tuesday evening from twenty to thirty yachtsmen, representing the different clubs in Chicago, sit around the festive board in the Morrison Hotel, and while primarily Commodore "Bill" Thompson's candidacy for the mayoralty nomination is foremost in their minds it is impossible to keep the conversation from running off to the boating game. Of course, everybody have their own favorites, but the "P," "Q" and "R" Classes seem to be the ruling favorites.

At the last meeting it was decided to give a moving picture show on February 9 at the Sportsmen's Club, at which time yachting pictures exclusively will be shown. Last season many of the clubs had moving pictures taken of their different regattas, and these will be collected from different sources and shown at this time. All yachtsmen in the city will be invited and the affair will be largely in the nature of a rousing winter round-up.

The Exhibits at the New York Motor Boat Show

Boats at the New York Show

(*Continued from page 64*)

statute miles an hour, fitted with a four-cylinder, 3¾-inch x 5-inch motor.

Among the cruising boats one that will attract a great deal of attention is the Enchantress, a 46-footer, designed by Bowes & Mower last year.

The new 32-foot 1915 "Speedway" mahogany runabout

This boat was built by the Essington Shipbuilding Company, and has had a full season's use, yet she appears like a new boat, which speaks volumes for the design and build, especially when it is known that she has a speed of over 22 miles an hour on 180 horsepower. This boat is most attractively laid out with cruising conveniences, a forward and after cockpit, and separate engine room. She exemplifies a type of high-speed cruiser that is obtaining great popularity.

Among the smaller boats a 32-footer, known as Cruisette, will fill a long-felt want for the man that desires a small boat that he can handle without a paid hand yet is built in the best manner. This little boat embodies many original ideas, and has been so carefully designed that it is safe to say that she is the largest craft of her size ever turned out. She is of unusually good model. The motor is installed in the after cabin, where it is entirely out of the way. The forward cabin is 11 feet long, and has sleeping accommodations for four; the after cabin has berths for two more, while three berths can be arranged in the cockpit under the awning. The speed is 10 miles.

Another high-speed runabout that will attract attention on account of its high finish and the excellence of the workmanship, is the 30-foot mahogany boat designed and built by George Lawley & Son Corporation. It is equipped with a 60-horsepower engine, giving her a 22-mile speed.

New Speedway Boats and Engines

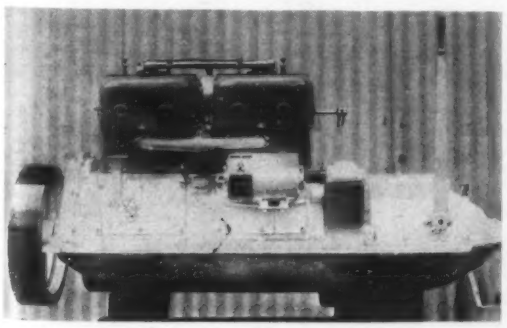
The "Speedway" exhibit of the Gas Engine & Power Company and Chas. L. Seabury & Co., Con., will occupy the same space in the center of the Garden as it did last year. It consists of three boats and three "Speedway" engines.

One of the boats, the Speejacks, is one of the features of the Show and also one of the largest boats at the Garden. The Speejacks was built for Mr. A. Y. Gowen, of Cleveland, Ohio, who owned the former 77-foot express cruiser Speejacks, well known for her records. This boat has a speed of 25 miles per hour, is 50 feet long, 8 feet beam, and 3 feet 3 inches draft. The boat is essentially a high-speed, able runabout, with a standing roof and glass enclosure forward. The motor, an 8-cylinder, 260-horsepower "Speedway," is installed under hinged covers forward. The forward bulkhead is fitted with the steering gear, reverse levers and necessary switches, gauges, etc. Though at first appearance this boat is a big runabout, at the turn of a hand cruising conveniences are available. There is a toilet, sink and oil stove under the forward seat, a washbasin on the port side of the cockpit, a dining table aft, and lockers along each side of the cockpit. There are side curtains which will make the cockpit weather proof. The after seat can be used as a berth. Careful attention has been given to make the boat a thoroughly one-man boat.

The other two boats are described elsewhere in this issue in an article on the New York Show.

There will be two "Speedway" engines shown on the floor besides the three installed in the three boats. The first of these engines is a 1915 model heavy-duty 100-120 horsepower. This is a new development and design of the "Speedway" motor, 6-cylinder, cast in pairs, bore 6¾ inches, stroke 8½ inches, 500 to 600 revolutions per minute. The engine is of the enclosed type, with forced feed oiling system, and is equipped with an air-starting device. It weighs 4,500 pounds complete.

The other engine will be one of the 125 to 160-horsepower air-starting and reversible "Speedway" engines, 8½-inch x 10-inch heavy-duty model. This type is already well known in many of the prominent larger gasolene cruising yachts.

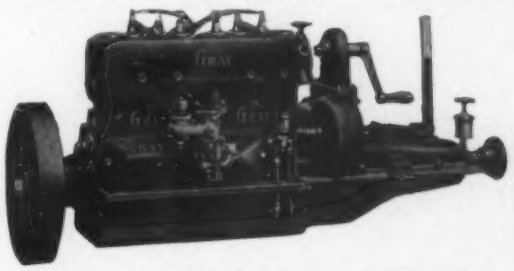


1915 model, 4-cylinder 40 h. p. "Speedway" motor

Some New Grays—Two and Four-Cycle

The full line of Gray engines will be found in the usual booth, Block F, occupied by the Gray Motor Company, of Detroit, for several years.

For many years the Gray Motor Company has



New 4-cylinder, 4-cycle, 3¾ in. x 4½ in. Gray motor, rated 16-20 h. p.

been a leader in the production of two-cycle marine motors. However, in all these years but four really different models have been produced, three of the four still being standard to-day. Instead of bringing out new designs each season it has been the endeavor of the Gray Motor Company to improve and refine its already successful models, and by improved manufacturing methods to lower the cost of production.

The 1915 Gray two-cycle line includes all the desirable features of up-to-date engines, and the design permits of almost any combination from a bare engine to a complete unit power plant. The Baby Grand, that little gem of last year's show, is one of the features of the exhibit. This unit power plant, highly finished in French Gray enamel, polished aluminum and nickel, filled a long-felt demand for a light-weight, powerful and dependable tender engine, finished to form a desirable complement to the smart tender of a costly yacht, and at a price not out of all proportion.

The Gray Gearless outboard motor is shown with both battery and magneto ignition. The Gray Gearless is the outboard motor that is different from other makes, there being no drive gears. The propeller is driven through a flexible shaft running in a curved brass tube. The rudder is placed in the curve of this tube, ahead of the propeller, thereby increasing the ease of steering. With the curved drive tube it is impossible to break the propeller or tear the stern out of the boat by striking an obstruction. There are no gears to strip or break; the flexible shaft, built upon the principle of universal joints, runs with the least friction. The engine is 3 inches bore and 2½ inches stroke, rated at only 2½ horsepower.

The Gray four-cycle line shown includes the four and six-cylinder Model "C" engines shown last year. These engines represent a high degree in design and construction. The attached mahogany instrument board carrying all controls, switches, etc., is a distinct Gray feature and a great convenience in installing and operating. A special aluminum alloy is used in the crank case to give both strength and lightness. The bearings and all working parts are designed with sufficient factor of safety to make the engines suitable for either runabout or cruiser. The four-cylinder is 4⅛ x 5¼, rated at 30 horsepower, and the six-cylinder is 3¾ x 5¼, rated at 40-50 horsepower.

The four-cylinder Model "D," 3¾ x 4½, rated at 16-20 horsepower, is one of the engine features of the Show. This is a size so universally in demand that a big manufacturing organization can handle it on automatic machines in quantities prohibitive in larger four-cycle engines. This engine can be had with either iron or aluminum alloy base, as a unit power plant or as a bare engine. Magneto or battery ignition, elevated rear starter, air or electric starter, are all features optional with the purchaser.

A Big Wolverine

The Wolverine Motor Works, of Bridgeport, Conn., exhibit their latest production, a 175-200-horsepower marine motor to develop 175 brake-horsepower at 300 revolutions per minute on suction producer gas, and 200 horsepower at the same speed on oil fuel.

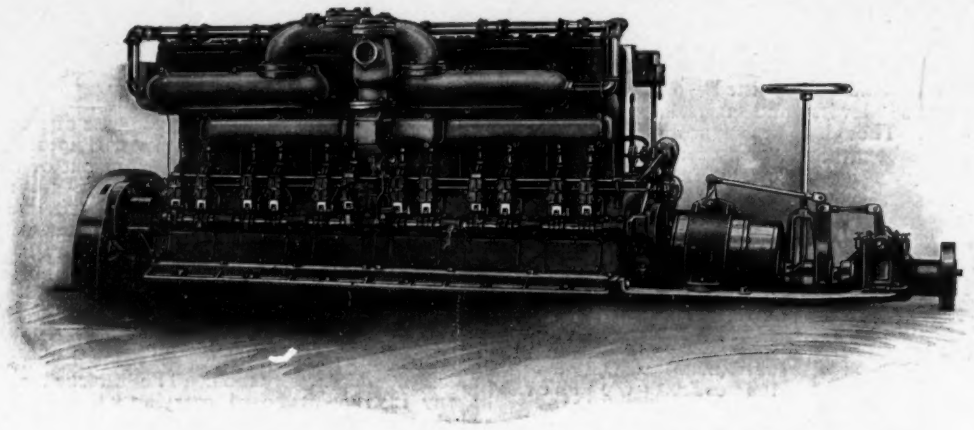
This motor has six cylinders, 11 inches bore, 15 inches stroke, and will weigh—engine, flywheel and reverse gear—approximately 18,000 to 20,000 pounds. There is a bearing between each throw of the crankshaft, and there are 81⅝ inches length of bearings on the crankshaft, the bearings being 4½ inches in diameter.

The lower base of the machine is made in one piece with the reverse gear extension bolted to the rear end of it. The construction of the extension is such that when bolted in place it is absolutely rigid. It has the advantage of being readily removable for shipment. The portion of the engine supporting the cylinders is in two parts, each carrying three cylinders. This is also made so that it can be easily dismantled, in this way saving the large cost due to shipping heavy machinery completely set up.

The crankshaft, likewise, is made in two pieces, the ends telescoping into each other and held by six 1¼-inch nickel-steel bolts. The telescopic construction of the crankshaft shortens the engine about 14 inches over engines having the usual type of construction where the crankshaft is made in two sections. The reverse gear is of the bevel type with high carbon manganese driving and driven gears. This reverse gear is handled with a hand-wheel, rack and pinion. The handling of the compression relief is such that the device can be thrown in regardless of the position in which the cams stop.

The total length of this engine from the forward end of the crankshaft to the center of the coupling at the rear of reverse gear is 180 inches, so that it will readily be seen that the design is compact. The usual large hand-hole doors are maintained in the upper bases so as to give ready access to the crankshaft and connecting rod boxes.

The ignition is "Wolverine" make-and-break, low-tension type, using wet batteries for starting and the Sumter low-tension type AP magneto,



New 175-200 h. p. Wolverine motor. The biggest engine at the Show

gear driven, for supplying ignition current when the motor is in operation. For producer gas the motor is supplied with a governor operating in connection with a balanced valve, making a very sensitive action.

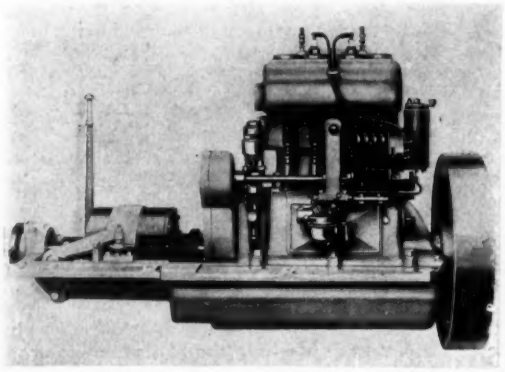
Sterlings for All Uses

In the exhibit of the Sterling Engine Company, Buffalo, N. Y., the entire line for the 1915 season will be seen, including several new engines.

The principal attraction will be a six-cylinder de-luxe motor, rated at 50 horsepower at 400 revolutions per minute, with a bore of 5½ inches and a stroke of 8 inches. This engine has been designed and built for the man who wants the best. It reflects the experience and knowledge gained by the Sterling engineers in twelve years of building high-grade marine engines. At no point in its design or construction was cost allowed to interfere, and everything that went into it was the best obtainable.

It has cylinders, cast in pairs, of the "L" head type, castings having jackets of the rectangular instead of the ordinary round form, and bolted to the base by concealed bolts set up from inside of the case. The flywheel is entirely enclosed, as is the whole motor, not a moving part being visible. The construction is heavy, yet it is wonderfully compact. The completed engine makes a handsome job, and one that is quiet, clean and vibrationless as it is possible to make a piece of machinery. The net price is $2,750, equipped with electric starter and regular Sterling equipment.

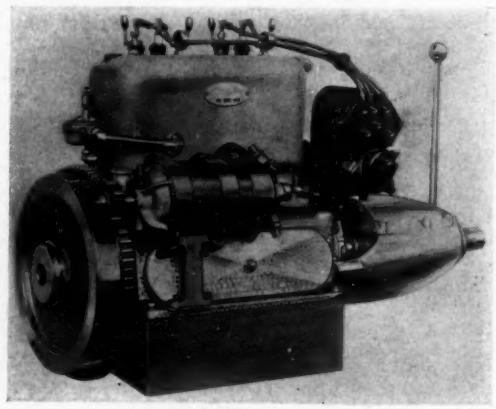
Another interesting new engine is the four-cylinder, 25-horsepower en bloc engine recently announced by the Sterling Engine Company. This motor has a bore of 3¾ inches and a stroke of 5½ inches, and develops 25 horsepower at 1,000 revolutions per minute and 30 horsepower at 1,200 revolutions per minute. It is a neat and compact job and is very quiet and clean in its operation. This particular engine is admirably fitted as a power plant for a family runabout or small cruiser, because of its light weight, low price and absolute reliability.



New 12-15 h. p. model "D" Sterling engine, 400-500 revolutions per minute

For 1915 the Sterling Engine Company are building a special eight-cylinder for express runabouts and cruisers. This motor has T-head cylinders of the same general construction as on their four and six-cylinder high-speed motors. It develops a full 150-horsepower at 1,200 revolutions per minute, and makes an ideal power plant for a 40-foot runabout or an express cruiser.

For the work-boat owner the Sterling Company have designed a special two-cylinder engine



The Sterling Kid yacht tender motor, with self-starter, magneto and reverse gear

developing 12 horsepower at 400 revolutions per minute and 15 horsepower at 500 revolutions per minute, which sell at $475 with complete equipment, including a magneto, reverse gear, etc. This is a rugged power plant, yet has the refinement of detail characteristic of Sterling engines.

A Big Line of Marine Hardware and Accessories

As usual C. D. Durkee & Co., Inc., are at the Show, and the last space at the east end of the gallery will be the meeting place of many yachtsmen who drop in to talk things over.

Two late devices now being turned out of the Durkee factory are the "Rusher" and "Ketcham" gasolene protectors for preventing the stealing of gasolene from motor boats or automobiles. These, with the Durkee pattern lock deck plates, provide against losses by theft. This year something is introduced that has long been wanted for large and heavy cruisers, namely, an "extra" tiller quadrant, designed by a well-known marine architect.

The Reliable Liquid Fire Extinguisher continues to prove a big success, while the dry extinguishers, bearing the name of "Motor" and "Anchor," are proving equally good sellers. Durkee & Co. will be glad to send circular matter about any or all of the articles they manufacture upon request.

Chas. D. Durkee & Co., Inc., whose reputation for delivering "hardware for wet places" has made them known throughout the United States for the last fifteen years, are now completing the third addition to their factory within a period of three years. They now have a complete equipment for making almost any kind of marine specialty, whether in brass, bronze, copper, aluminum or gray iron castings, and are able to take care of special goods in the marine line. Their factory contains a galvanizing plant, large machine shop, pattern making, polishing and nickel-plating department, and sheds for the storage of heavy articles such as anchors.

Holmes Lifeboat Cruiser and Engines

The Holmes Motor Company, of West Mystic, Conn., are exhibiting this year a new and improved lifeboat cruiser, 36 feet long, to be equipped with a six-cylinder, 35-40-horsepower Holmes motor, this being a larger size motor than was in the lifeboat exhibited last year. This boat will have sails, a galley in the after end of the cabin, and a more complete layout for the cabin in general than the older boat. This boat is already sold to Capt. David H. Lyon, of Ogdensburg, N. Y., and will be used principally at the Isle of Pines, Cuba, although no doubt she will also be used somewhat around Ogdensburg in the summer. The name of this boat is the Miss Nancy, and she is "right up to the minute" in everything regarding safety, and is able to go anywhere.

This company is also making a smaller boat of the open type to fit the requirements of the new ruling of the Steamship Inspection Service for coastwise steamers, which will be obliged to carry one motor boat of the lifeboat type after January 1. The general features of this boat will be along lines very similar to the cabin boat with the motor in the stern. The motor for this smaller boat the Holmes Motor Company will have ready for the trade in the spring.

The Holmes 20-25-horsepower, four-cylinder, and the 75-horsepower, six-cylinder, open base engines will also be shown at the Garden.

The Holmes Motor Company state that they have just signed a contract for another lifeboat cruiser 41 feet long by 9 feet 8 inches beam, to be equipped with one of the 6-cylinder Model K Lifeboat Special motors for Mr. A. M. Davis, of Boston. This boat is to be named the Bostonian, and is to be used along the Maine coast, and the safety feature is to be given very careful and particular attention. This boat will have a more complete cabin arrangement, with a galley forward and the toilet in the after end.

Evinrude Rowboat and Canoe Motors

The Evinrude Motor Company, of Milwaukee, exhibit their well-known line of rowboat motors, with 1915 changes and additions, consisting of the following:

Model A, standard reversible, with automatic reverse, with magneto; 2 horsepower and 3½ horsepower.

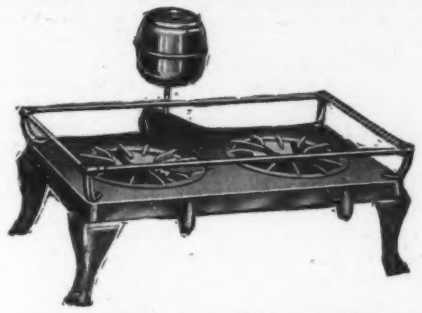
Model "A," Standard Evinrude motor, with automatic reverse

Eventually You Will, Why Not Now?

ASK YOUR DEALER FOR DURKEE'S GOODS

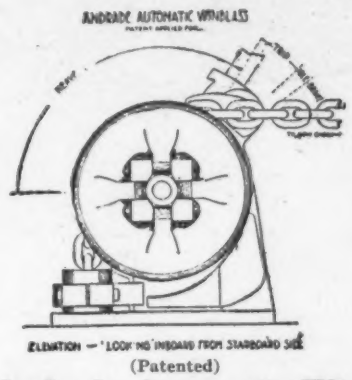
Made for Service and then for Sale and Satisfaction of User—and Costs no more

Pyro Alcohol Stoves



These stoves are made for marine use with 1, 2 and 3 burners and oven and a separate tank for alcohol.

	Dimensions over all	Height	Weight
1 burner	14x16 in.	14½ in.	12 lbs.
2 burners	12x22 "	14½ "	20 "
3 burners	16x30½ in.	16 "	27 "



(Patented)

The Andrade Automatic Windlass

For Boats 25 Feet Long and Over

By simply moving the handle bar you can heave in, let go, or brake the chain at will. The first and only automatic windlass. Has but four moving parts. Gives one man absolute control of his ground tackle at all times and under all conditions. The Andrade Windlass makes a one-man boat out of a 60 footer.

Send for booklet with full information.

Crescent Ball-Bearing Anchor

(Patented)

Constructed right from the right material, on the right principles. The slightest pull on cable sends shank into position. Shank has ball socket and is cast into head, doing away with need for pin to keep shank from backing out.

Can be furnished with round shank to swivel, but do not advise the use of a swivel shank anchor.

All weights, from 5 to 300 lbs.

Galvanized with Drop Forged Shank

Send us 25 cents for postage on New 1915 Catalogue or get it through your Dealer Free of Charge

Circulars describing fully all Goods made at our Factory gladly sent on request

Durkee Factory at Grasmere, S. I. June, 1914 — A New Addition 300 x 30 Added December, 1914

McKenzie Clamp

(Patented)

Without this Boat Builder's Clamp

the boat shop of to-day would not be fully equipped, and the cost of planking and ceiling motor boats would be not only practically prohibitive, but the consummate skill of the boat builder would be severely tried. Every practical motor boat builder owns one—do *you?*

The Reliable Fire Extinguisher

was designed for especial efficiency in the extinguishing of Gasolene, Electric and Acetylene Fires; is manufactured to meet an immense demand for such an efficient device, is sold at a price within the means of every motorboatman; has proven its merit and worth times innumerable; fills Federal requirements for fire-fighting equipment on motor boats. Do you own one?

KLEEN-EZE

Cleans Cleaner than any other cleaner cleans clean. A combined cleaner and polisher—**All in One**—for all bright surfaces, glass, metal or porcelain. Put up in sizes from gallon to 2 ounces. Give it **one trial** and learn its value.

CHAS. D. DURKEE & CO., (Incorporated)

Factory
GRASMERE, Boro of Richmond
Staten Island, N. Y. City

MANUFACTURERS
of Marine Hardware Specialties

Office and Warehouse
2 and 3 SOUTH STREET
NEW YORK

Model B, standard reversible, with automatic reverse and batteries; 2 horsepower and 3½ horsepower.

Model C, commercial reversible, with automatic reverse, with magneto; 2 horsepower.

Model D, commercial reversible, with automatic reverse, with batteries; 2 horsepower.

This company also manufacture the same machines adapted to service in canoes. In addition to the above they show a round-bottomed boat, a flat-bottomed boat and a canoe equipped with Evinrudes.

Thus far the Evinrude Company have brought forth each year a new and desirable improvement to its already successful motor. Last year it was the built-in magneto and this year it is the automatic reverse. These features are guaranteed by the Evinrude Company. Though the Evinrude Company will still supply battery ignition at a smaller cost, if desired, yet they say that 98 per cent of their orders specify the built-in magneto, which shows the way that this type of ignition is appreciated by engine users. The Maxim Silencer is a part of every standard machine and is also an exclusive feature.

This year the Evinrude Company announces as its major improvement the automatic reverse. With this feature the motors become 100 per cent more flexible. The Evinrude Company also offer a commercial motor to suit the popular demand. This sells at $60. Notwithstanding the decrease in the cost of this machine it carries the Evinrude built-in magneto and the Maxim Silencer.

Ralaco Silent Simplified Engines

The S. M. Jones Company, of Toledo, Ohio, makers of the well-known Ralaco engines, will, as usual, have one of the most interesting exhibits at the New York Show, especially for the man that wants a *real* engine from the base up. The company will show a two-cylinder, 4 x 6, 10-horsepower Ralaco; a four-cylinder, 4 x 6, 20-horsepower; and for the first time in New York will show their new model six-cylinder, 5 x 7, 45-horsepower engine. This engine is similar in design to all Ralaco engines, with the exception that it is equipped with two independent sets of jump-spark plugs; has two carburetors, and although rated only at 45 horsepower will pull better than 50 horsepower on the brake at 500 revolutions per minute. They will also exhibit one of their 6-cylinder, 7 x 9, 75-horsepower engines.

The Ralaco engines are of the heavy to medium duty valve-in-the-head type, and are designed for cruisers, open launches and work or commercial boats, where power is wanted with a large P. The performances of Ralacos in numerous long-distance races show their extreme reliability. They have good speed control, with a speed range of 100 to 625 revolutions per minute for the various engines. Cylinders are cast separately and mounted on base with exposed valve gear on outside of each cylinder, the whole presenting a very simple and business-like appearance with but few working parts. On the smaller sizes Bosch dual type high tension ignition is used, while on the larger sizes low tension magneto, with make-and-break ignition, is found, though these may be fitted with jump-spark if desired.

Two and Four-Cycle Mianus Motors

The Mianus Motor Works, of Stamford, Conn., builders of two-cycle gasolene motors for the past seventeen years, have an unusually interesting line of single and double-cylinder engines for pleasure boat or work-boat use, in from 3 to 20 horsepower, make-and-break. These are heavy-duty engines, developing their ratings at from 375 to 550 horsepower. In addition to these the Mianus Company have just placed on the market a new four-cycle machine that will be seen at the Show. They are building this in two sizes, 16 horsepower, two-cylinder, and 32 horsepower, four-cylinder.

This company has always been a firm believer in the two-cycle principle, and in placing this four-cycle machine on the market they are careful to

New 16 h. p., 2-cylinder, 4-cycle Mianus motor

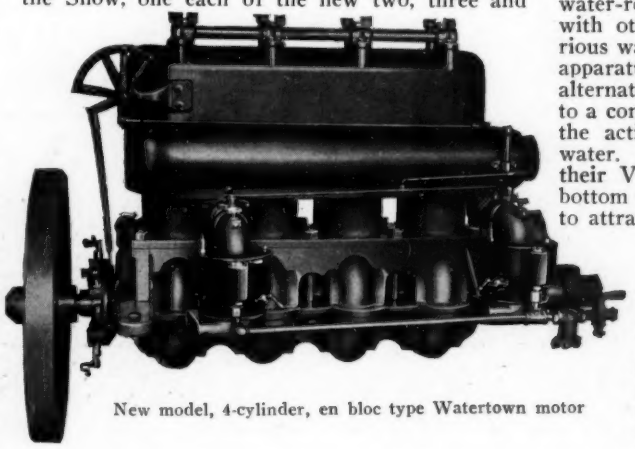
explain that they still believe in the two-cycle principle. They believe, too, that the only advantage the four-cycle may have over the two-cycle is the greater flexibility and better control. Realizing that there was a certain demand for motors where the utmost flexibility and the most perfect control were necessary, they have developed this four-cycle engine and placed it on the market. In doing so their aim has been to build the very best machine that seventeen years of experience, a model plant, ample resources and the best of materials could produce.

This new machine was built without regard to expense, and they have adhered strictly to the best four-cycle practice throughout in its design. Practically every part of the machine can be removed separately without disturbing other parts. Even the crankshaft itself may be taken out without removing cylinders, pistons or connecting rods. The cylinders are of T-head construction, cast separately, with extra water space around the valve chambers. Both sizes have a bore of 6 inches with 8 inches stroke. The cylinder heads are cast separately and are water-jacketed. The cooling water passes from the cylinder to the cylinder head through an outside by-pass. This eliminates water ports between top of the cylinder and the cylinder head, and does away with possibility of water leakage. The pistons are cast from the same iron as cylinders to insure equal expansion.

Watertown Motors

The well-known Watertown motors will be exhibited at the Motor Boat Show this year by the new owner of this company, James P. Gillespie, of New York, the company being now known as the Gillespie-Boynton Company, Inc. The factory will be transferred from Watertown, N. Y., to Paterson, N. J., where a large building will be erected and fitted out, and the company will have facilities for turning out in quantity both marine and stationary engines. Mr. Gillespie, of the new company, is well known as a motor boat enthusiast, and has owned and driven some fast boats on the St. Lawrence.

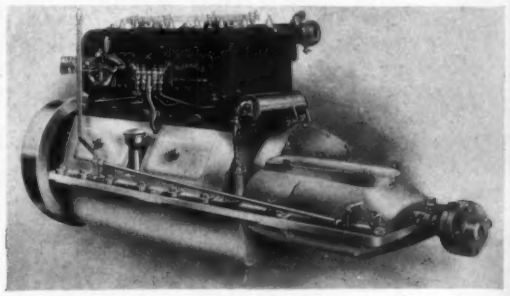
The new company will exhibit five engines at the Show, one each of the new two, three and four-cylinder en bloc type motors, and a single-cylinder, 5½-inch x 5-inch heavy-duty engine for fishing boats and hard, rough service. They will also show a new kerosene stationary engine. The Watertown engines have always had a reputation for reliability and workmanship with those that have used them, and in bringing out these new motors the company are giving to boat users a machine that is absolutely reliable, economic, simple and one that will stand up under all kinds of usage.



New model, 4-cylinder, en bloc type Watertown motor

A New Buffalo Cruiser Engine

The feature of the exhibit of the Buffalo Gasolene Motor Company which attracts most attention is the new type of cruiser engine, which is the latest addition to the "Buffalo" line. This engine is shown by the smaller of the two sizes in which it is built—a four-cylinder machine with 5½ inches bore, 7 inches stroke, so arranged that it can be run at any desired speed from 600 to 900 revolutions per minute, the rating, 40-60, depending upon the speed. This engine is designed for the powering of cabin boats and also the larger type of open runabouts. It can be equipped with either aluminum base or iron base, depending upon the requirements of the boat, and a number of changes in its equipment are made depending



4-cylinder Buffalo cruiser and runabout engine. A new model this year

upon the speed at which it is to be operated. Often when a boat is in a seaway, with its propeller out of water at every dip, the sudden racing of the engine as it is relieved of its load is a condition which gives trouble to the engineer. This is remedied in the new Buffalo model by the use of an enclosed horizontal governor operating upon a balanced double-disc throttle valve. The ignition furnished is the regular "Buffalo" double ignition whereby there are really two complete systems, one operated by the magneto and the other by the battery and distributing system. This engine is also built in larger size, 6¾ x 9 inches, four-cylinder, operating at a slightly slower speed.

Valspar at the Show

For many years Valentine & Co., makers of the well-known Valspar varnish, have had an exhibit at the Show. This year they will have a very attractive booth, a large part of which will be devoted to giving demonstrations of a test of the water-resisting qualities of Valspar as compared with other spar varnishes. This is done in various ways, and this year the company will use an apparatus which subjects a panel varnished with alternate layers of Valspar and other varnishes to a continuous stream of running water, showing the action of the various varnishes under the water. They will also have demonstrations of their Valspar canoe enamel and Valspar bronze bottom paint, a non-fouling paint that will be sure to attract the boatmen.

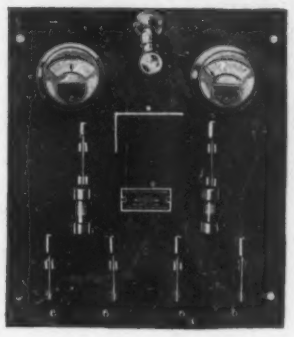
Kovan Tanks

Everybody that goes to sea in a motor boat is vitally interested in the containers for his fuel supply, and the display of L. O. Kovan & Bro. of fuel and water tanks for all kinds of boats will be sure to attract attention. The exhibit will consist of bow-shaped tanks made of copper, also of steel, galvanized; cylindrical gaso-

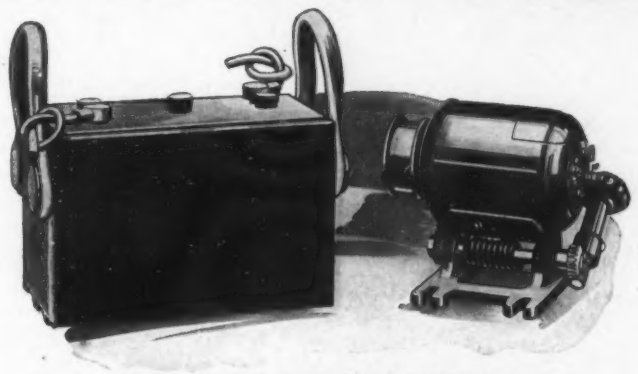
IGNITION LIGHTING APELCO STARTING SIGNALING

The Pioneers of Motor Boat Electric Lighting Outfits

A complete new line of dynamos is being furnished for marine lighting work, and the various component parts have been inproved, making them more compact and serviceable.



The APELCO Systems are furnished in three different sizes, known as Model B-1, B-2 and B-3.



APELCO B-2 Motorboat Electric Lighting System

Our FREE BOOKLET on Motor Boat Lighting and Starting Systems or booklets explaining in detail our several products, will be sent cheerfully upon request. Or, better still, call at our nearest service and distributing station for full information.

APPLE ELECTRIC COMPANY

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ATLANTA	10-12 E. Harris St.	LOS ANGELES	1215 S. Hope St.
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DALLAS	402 S. Ervay St.	PHILADELPHIA	210-212 N. 13th St.
DAYTON	427 E. 3d St.	SAN FRANCISCO	1028 Geary St.
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Steering Gears

and MARINE FITTINGS for

Power and Sail Yachts

Edson Manufacturing Company

Established 1859

260 Atlantic Avenue Boston, Mass.

If You Are In the Market

for a second-hand boat, you will find ***JUST*** what you want pictured and described in the special March Boat-for-Sale Number of YACHTING—published March 1st.

SHOOTING CLAY TARGETS FROM THE CLUB HOUSE WHARF

TRAPSHOOTING

The Ideal Sport for Yachtsmen

THERE is no other form of recreation so adaptable to yachtsmen's requirements as trapshooting. It can be enjoyed at the club house, or aboard any craft.

The equipment—guns, targets, shells and trap—is easy to obtain, and the staging of the shooting match easy and simple when the Du Pont

HAND TRAP IS USED

for throwing the targets. The sport is thrilling, fascinating and scientific at the water's edge, or on the yacht deck. Impelled by the Hand Trap, the target's flight is influenced by the acts of the operator and by the caprice of air currents. Smashing clay targets then becomes a shooting game of the highest class.

Many of the foremost yacht clubs are putting trapshooting on their club calendar for week-end shoots. Why not yours? Once you try it, the game is a fixture. For the inevitable "slow day" on the cruise, get out your guns, targets and shells, line up your party at the rail, and give them some target shooting. The Du Pont Hand Trap is ideal for this event. There are no "slow days" afloat or ashore with the Hand Trap in service.

TARGET SHOOTING ON DECK

Your dealer probably sells the Du Pont Hand Trap, but if not, send us a money order for $4.00 and we will ship postpaid.

For free booklets descriptive of trapshooting and how to use the hand trap, write to Dept. 423-S.

Du Pont Powder Co.

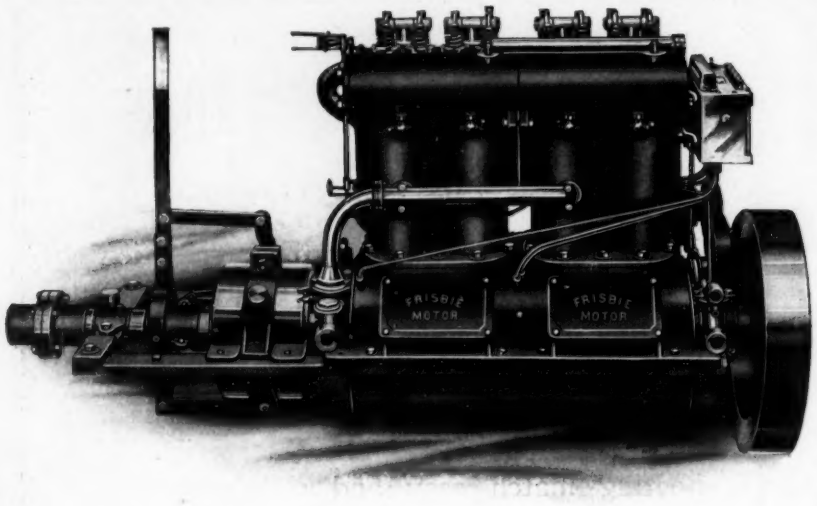
Established 1802

WILMINGTON, DELAWARE

lene tanks, both of copper and galvanized iron; galvanized tanks for air; galvanized mufflers; rudders made of brass and of steel; gasolene storage tanks for storage of gasolene underground; oily waste cans; spraying outfits and some specialties. Where the safety of a power boat depends so much upon the freedom from leakage, well-made tanks are essential, and therefore the exhibit of the Kovan tanks will receive much attention.

Frisbie Motors, Large and Small

Frisbie motors, made by the Frisbie Motor Company, of Middletown, Conn., have always been noted for their neat and clean appearance,



The 1915 model 4-cylinder, 4-cycle Frisbie motor, with reverse gear

but in this respect the 1915 models which will be exhibited by this company outdo all their previous engines. The Frisbie Motor Company will have at the Show seven engines, among which will be one size of each of the new 1915 two-cylinder models. In this model the makers believe that they have reached the last word in marine construction for the valve-in-the-head type of motor. This engine has the intake and the exhaust manifold water-jacketed; has an improved circulation pump; large valves, and, in fact, is an exceptional motor in many ways. With the valve-in-the-head motors the valves open directly into the combustion chamber with no pockets or recesses, and thus every ounce of energy is exerted directly over the piston head.

The company will also have on hand one each of their three-cylinder motors that were brought out in 1914. One of these three-cylinder engines of small size, powered the winner of the Record Trophy, the well-known power boat Eugenia, owned by Dr. Swayne, of Philadelphia.

They will also show a four-cylinder, 6 inches x 6 inches, 40 horsepower, as well as a large six-cylinder, 75-horsepower motor of the same bore and stroke. To go to the other extreme they exhibit a little single-cylinder 3-5-horsepower motor, which is particularly suitable for small boats and is becoming very popular both on the Pacific Coast and in the South. The cut of the new 1915 model herewith shows the exceptionally clean and neat appearance of this new model.

Twentieth Century Motors

The Twentieth Century Motor, exhibited by the New York Yacht, Launch & Engine Company, consists of one four-cylinder, 6½ inch x 8½-inch 40-50-horsepower motor.

The general plan of this motor is the same as has been used by the builders in the past with the addition of many refinements and improvements. The Twentieth Century Motor for 1915 will have all valves enclosed, the reverse gear will be covered and the gears of the reverse gear and timing shaft will be helical instead of bevel and spur gears as heretofore.

The Twentieth Century Motor is built with a solid crank case having a web between each throw of the crankshaft, in which is housed a phosphor bronze journal bearing, there being one bearing between each cylinder. The reverse gear is entirely encased with expanding ring clutch, all gears running in oil. The cylinders are cast in pairs, cylinder bores being ground to size. Cylinder heads are removable.

This motor is equipped with a Kingston carburetor, force feed lubricator to all cylinders and gravity feed to all other bearings. Ignition system consists of the Bosch K type dual and high-tension systems. The four-cylinder 6½ x 8½, 40-50-horspower Twentieth Century Motor uses a 2-inch diameter bronze propeller shaft, and swings a 3-bladed Hyde propeller 32 inches in diameter and 40 inches pitch, 425 revolutions per minute.

The New York Yacht, Launch & Engine Company, builders of the Twentieth Century Motor, suffered a severe fire during the past summer which destroyed their machine shop, and they have now just completed a new shop fitted with modern tools, and will be glad to have anyone interested in modern motors visit them at their works at Morris Heights, New York City.

Monarch Varnishes and Removers

Charles H. Gillespie & Sons, of Jersey City, N. J., who have been making varnish for over 90 years, have a very enlightening exhibit at this Show of their Monarch varnishes and varnish removers that make a special appeal to the man that knows real varnish.

"Monarch Spar" is a standard preparation carefully prepared after a formula which has proved absolutely efficient, meeting all the requirements it has been called upon to perform. It has been used for a number of years by some of the largest steamship companies. The makers state that it does not require a midsummer refinishing, as it withstands atmospheric changes, is sun and water proof, and holds its luster unusually long.

Charles H. Gillespie & Sons also manufacture Monarch Bull Dog paint and varnish remover cream. It is a slow-drying, non-evaporating remover that works instantaneously, and it is claimed that the most difficult paints, enamels and shellacs can be removed with this preparation in any weather.

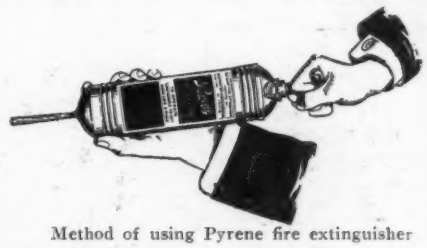
Other Monarch specialties are Monolac, Monarch Engine Enamel and Monarch Yacht White.

The "Monarch" booth at the Show will be used by the firm as a reception room in which to entertain their many friends and users of "Monarch" products.

Pyrene for Safety

The Pyrene Manufacturing Company will exhibit in Space No. 29, on the elevated promenade to the left of the main entrance, the latest approved Pyrene Fire Extinguishers and brackets for attaching them to boats, motor cars, etc.; also tamper-proof boxes of both metal and wooden construction.

The Pyrene Fire Extinguisher has been improved considerably and a new type bracket designed since the last Motor Boat Show. Every



Method of using Pyrene fire extinguisher

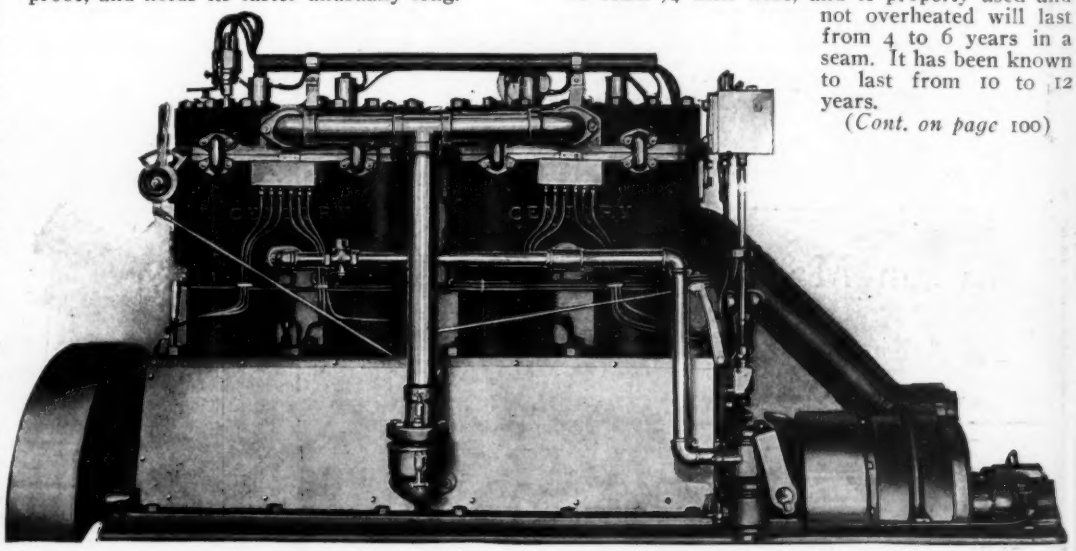
part of the mechanism going into the construction of the Pyrene extinguisher will be shown separately, there being 42 of them.

Demonstrations will be given showing the scientific principle by which Pyrene extinguishes fire. This is done by bringing the liquid in contact with heat, generating a very heavy white gas. This gas blanket spreads over the burning material, excluding the oxygen of the air and smothering the fire.

Keep Your Decks Tight

Among the articles handled by all of the marine hardware dealers at the Show is Jeffery's Marine Glue for making the seams of the deck tight. The flexibility of this glue is one of its most valuable qualities, as it allows the timbers to contract or expand in dry or wet weather while still retaining its adhesive powers to the edges of the plank. Another quality that makes it valuable for yachtsmen is that it does not stick to the feet in hot weather. Fourteen pounds of this extra quality marine yacht glue will run from 200 to 250 feet of seam ¼ inch wide, and if properly used and not overheated will last from 4 to 6 years in a seam. It has been known to last from 10 to 12 years.

(*Cont. on page* 100)



Four-cylinder, 6½ in. x 8½ in., 40-50 h. p. Twentieth Century motor

See the 36-Ft. Life Boat Cruiser

for use in the West Indies in our Exhibit at the New York Show. This boat has the same non-sinkable and self-righting characteristics as the 36-Ft. Government Life Boats and is powered with the same motor, "the Motor the Life Savers Use."

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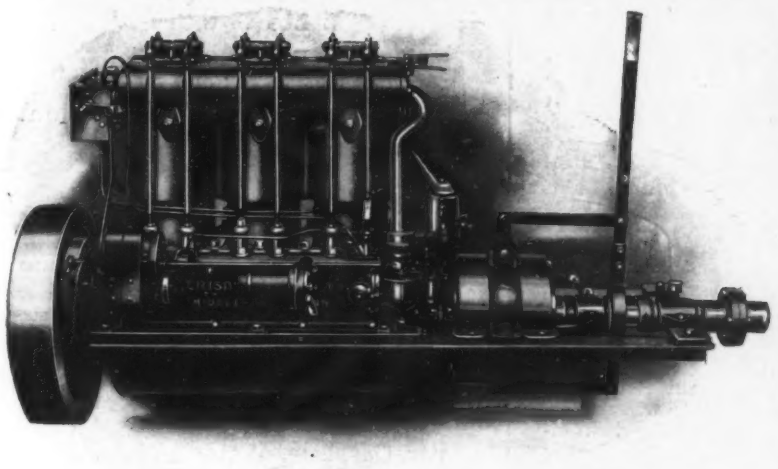
Overhead Valves *EXPLAIN THE EFFICIENCY OF THE FOUR CYCLE* FRISBIE MARINE MOTOR



Frisbie Motors are undeniably superior to most other high grade motors in efficiency, power, economy and durability—and the reason is the famous Frisbie Overhead Valve construction.

The large valves open directly into the cylinder heads, insuring a full charge of clean, fresh gas on the intake and thorough scavenging of the burnt gas on the exhaust. Motor experts concede 20% greater efficiency for this type of valves.

Valves are mounted in water-jacketed cages, quickly removable—valve, seat and cage—for grinding or replacement.

Refinements for Nineteen Fifteen

On 1915 Frisbie models the intake and exhaust manifolds are cast integral with the cylinders, equalizing the heat of the motor, improving the appearance and adding a marked degree to the efficiency.

10 Models 3 to 75 H. P. 1 to 6 Cylinders

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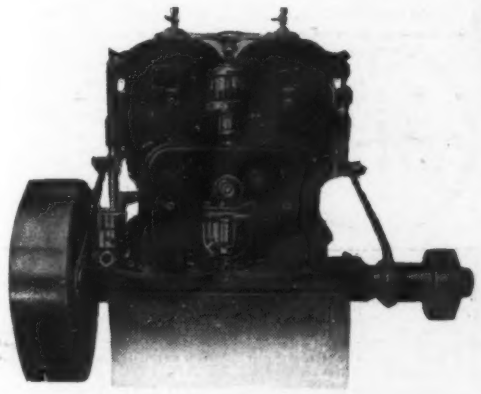

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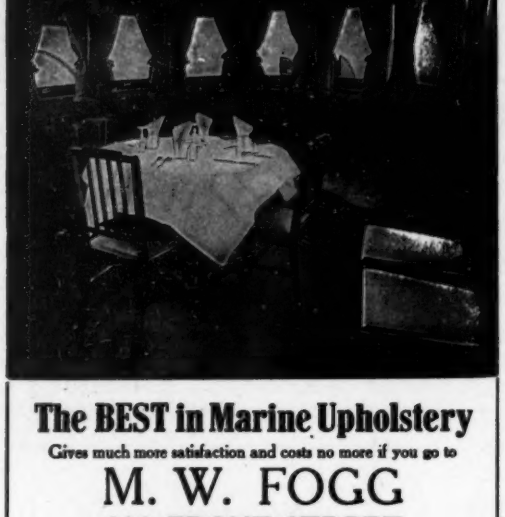

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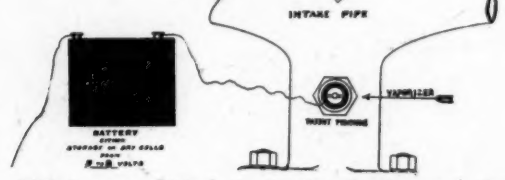
Apelco Lighting Systems

The Apple Electric Company, with distributing stations in all the principal cities, exhibit at the Show the Apelco electric lighting system for motor boats, and yachts. These lighting systems are the result of twenty years of experience in this particular line of work. Mr. Vincent G. Apple, one of the pioneers in the ignition field, devised the dynamo storage battery system in 1890. This long experience in the field has enabled the Apple Electric Company to incorporate in their system all of the latest improvements and developments. A complete new line of dynamos is being furnished for marine lighting work, and the various parts have been improved to make them more compact and serviceable. The Apelco lighting systems, for both running, riding and cabin lights, are furnished in three different sizes, shown as Model B-1, for boats from 16 to 25 feet in length, consisting of dynamo, automatic switch and storage battery; the B-2 system, for boats 25 feet to 40 feet in length, and the B-3 system, for boats 40 feet to 65 feet long.

For Starting a Cold Motor

Any of those motor boat owners who have experienced the difficulty of starting up a motor on a cold or damp winter morning, when the engine has stood all night and is stone-cold, will appreciate a little device recently placed on the market to aid vaporization at low temperatures, and to furnish a mixture that will make an explosion without repeated priming or cranking. This little device is called the Electric Gas Vaporizer. It consists of a plug with a coil on the inside end,



which is screwed into the intake pipe between the carburetor and the engine. Current is supplied to the vaporizer from a battery of either storage or dry cells, there being a separate switch installed to cut the current on or off. This electric current passing through the coil of the vaporizer supplies the necessary artificial heat to the incoming air mixed with the raw gasolene, that aids vaporization and forms a warm mixture which it is said will produce results equal to those obtained in summer.

Installing the Engine

(*Continued from page 70*)

stern post, marks being cut on the rim of the flywheel (or shaft, if there is a reverse gear), where it affects the performance under sail very slightly.

Until recently all auxiliaries were equipped with motors driving through the ordinary clutch, or even directly coupled to the propeller shaft. Latterly, however, the practice of connecting motor and shaft by some other means has been tried with great success. The motor may then be placed directly above the shaft, thus getting the shaft line more nearly horizontal and getting the motor up where there is room to work around it. It may be put above the shaft and to one side, thus leaving the center line clear and using the less valuable space in the wings. The connection may be made by a silent chain or by sprockets and a roller chain. The advantage of this system is that a light, compact, medium-duty engine may be used, as the revolutions of shaft and engine may be quite different. In one recent case the engine turned up 800 revolutions per minute and the propeller 400. The drive in this case was by a silent chain and the system was an entire success.

This system is particularly applicable to a centerboard boat with the engine forward, as the shaft can be readily kept below the line of the cabin floor beams and the engine placed above it, either directly over it or to one side. It is sometimes difficult to place a direct-connected engine in such a boat, as it must be off center to have the shaft clear the trunk, without getting the motor so high that the shaft line encroaches on floor space in the cabin.

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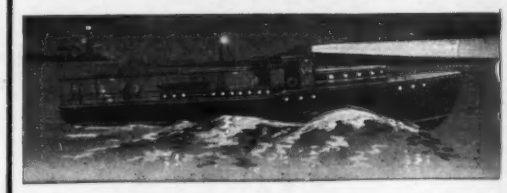

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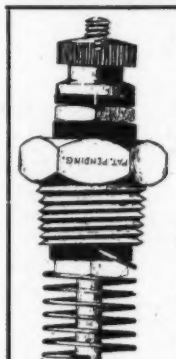

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THE BRIDGEPORT MOTOR CO., Inc.
Bridgeport, Conn., U.S.A.

How to Build a 22-Foot Cat

(*Continued from page 82*)

base of operations. Mark the centers at each end and then work the stick down to octagonal section, the full size; after this trim off the corners, making a sixteen-sided section, and so on down to a circular section, all this latter work with the draw knife and long fore plane. From time to time snap on the chalk line with red or blue chalk, to see that you are running true.

Now take a large pair of calipers and gradually work the spar down to the right diameters, making all the tapers full curves and not straight lines or hollows.

You will be surprised to find how difficult it is to keep a good, round section and at the same time keep the lengthwise curves fair. Spar makers use a special plane with a hollow cutter. This is useful in finishing up, but not indispensible. When you have gone as far as you can with the plane you will have to finish up with scraper and sand paper. When the spars are done, attach the hardware to them in accordance with the sail plan. A list of the rigging and fittings is given later on, together with prices for same.

(*To be concluded*)

The Miami Mid-Winter Regatta

(*Continued from page 84*)

a little, but on the final lap Sayanora again increased her lead, winning by 21 seconds.

The hydroplanes then began to shoot around the Bay, throwing up clouds of spray. Boats of any length were eligible, the distance being eight times around the course. Baby Speed Demon, Baby Reliance and Be Be Shadow—the latter another of Carl T. Fisher's big fleet—were the only boats that took part. Buffalo Enquirer was also entered for this event, but for some reason did not start. Be Be Shadow got over the line first, Baby Speed Demon and Baby Reliance following in the order named. Before the completion of the first round Baby Reliance shot into the lead and held it for six laps, when Baby Speed Demon went by her at the home turn. Speed Demon and Reliance are probably as evenly matched as hydroplanes can be, and the only way either secured any advantage was by maneuvering at the turns.

On the seventh lap both boats were running neck and neck—Speed Demon leading at the turn by only 3 seconds. On the eighth and final round Baby Reliance, in a grandstand finish, forged ahead and won first place by the narrow margin of eight seconds. Be Be Shadow finished 14 minutes after the winners.

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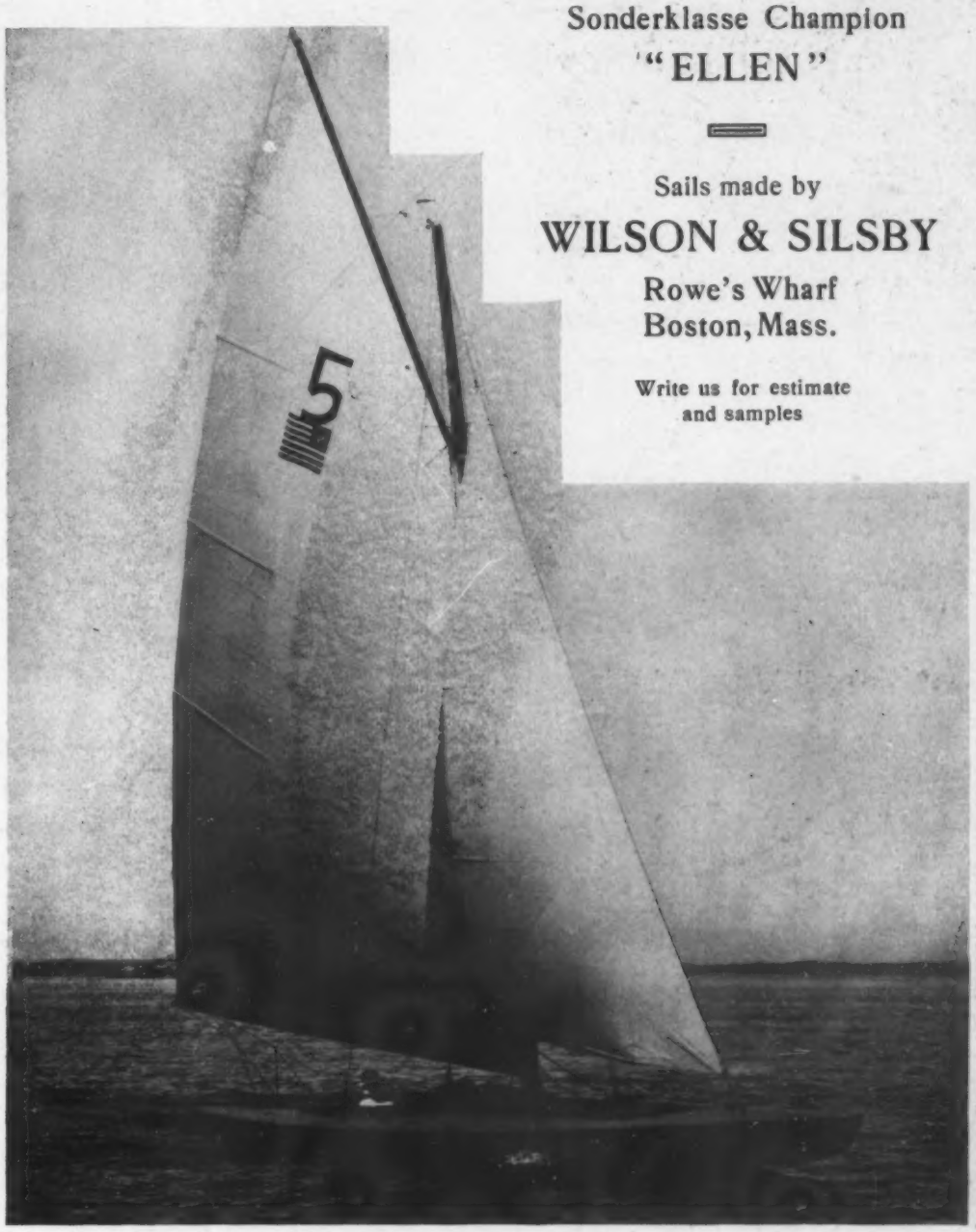

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